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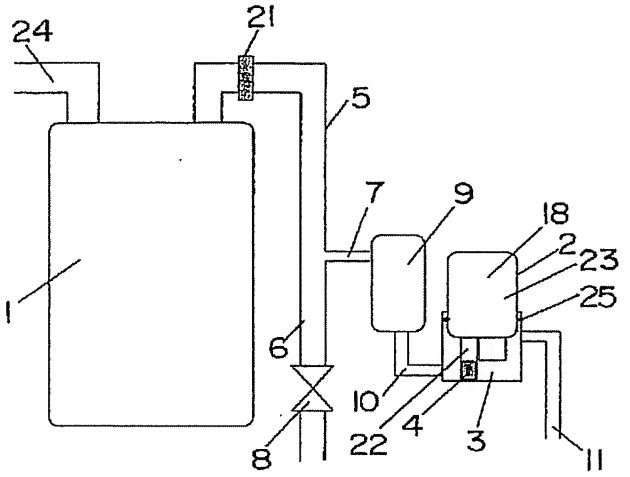
(71)出願人　000005832
松下電工株式会社
大阪府門真市大字門真1048番地
(72)発明者　井上　浩
大阪府門真市大字門真1048番地松下電工株式会社内
(72)発明者　西川　壽一
大阪府門真市大字門真1048番地松下電工株式会社内
(74)代理人　100087767
弁理士　西川　惠清　（外１名）

最終頁に続く

(54)【発明の名称】水処理装置

(57)【要約】
【課題】　原水に処理を施す水処理部と、水処理部による処理後の水の水質を測定する水質測定器とを具備する水処理装置であって、水質測定器の感応部における気泡の付着を防止して異常出力の発生を防止し、処理後の水の水質を正確に測定することができる水処理装置を提供する。
【解決手段】　水質測定器２が処理後の水が供給される検水容器３と水質測定時に水に直接接触する感応部４とを備える。水処理部１における水の処理動作を停止した場合に感応部４が検水容器３内の水と接触している状態から感応部４が水に接触していない状態へと切り替え、次いで感応部４が検水容器３内の水と接触している状態へと切り替える切替機構を具備する。

1　水処理部
2　水質測定器
3　検水容器
4　感応部



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【特許請求の範囲】

【請求項１】　流入口から流出口に至る流路と、この流路を流通する原水に処理を施す水処理部と、水処理部による処理後の水の水質を測定する水質測定器とを具備する水処理装置において、水質測定器が処理後の水が供給される検水容器と水質測定時に水に直接接触する感応部とを備え、水処理部における水の処理動作を停止した場合に感応部が検水容器内の水と接触している状態から感応部が水に接触していない状態へと切り替え、次いで感応部が検水容器内の水と接触している状態へと切り替える切替機構を具備して成ることを特徴とする水処理装置。

【請求項２】　水処理部による処理後の水が流通する処理水流路の下流側を排水流路と排水流路よりも小径の供給流路とに分岐し、排水流路に開閉弁を設け、供給流路の下流側を処理後の水を貯留する貯留部に接続し、貯留部と検水容器とを接続管にて接続することにより切替機構を構成して成ることを特徴とする請求項１に記載の水処理装置。

【請求項３】　水処理部による処理後の水が流通する処理水流路の下流側を検水容器の下部に接続し、検水容器内から流出する水の流路として、検水容器の下部に下部流出流路を接続すると共に、下部流出流路よりも上方において検水容器に上部流出流路を接続し、下部流出流路に開閉弁を設けることにより切替機構を構成して成ることを特徴とする請求項１に記載の水処理装置。

【請求項４】　水処理部による処理後の水が流通する処理水流路の下流側を検水容器に接続し、処理水流路をバイパスするバイパス流路を設けると共にバイパス流路の配管途中に処理後の水を貯留する貯留部と貯留部よりも下流側における水の流通を制御する流水調整装置を設け、バイパス流路の下流側端部と処理水流路との合流点と検水容器との間において処理水流路から排水流路を分岐して設け、排水流路に開閉弁を設けることにより切替機構を構成して成ることを特徴とする請求項１に記載の水処理装置。

【請求項５】　水処理部による処理後の水が流通する処理水流路の下流側を検水容器に接続し、検水容器に検水容器内から流出する水が流通する流出流路を接続し、流出流路に開閉弁を設け、検水容器に検水容器内へ空気を送出するエアーポンプを設けることにより切替機構を構成して成ることを特徴とする請求項１に記載の水処理装置。

【請求項６】　水処理部による処理後の水が流通する処理水流路の下流側を検水容器に接続し、検水容器に検水容器内から流出する水が流通する流出流路を接続し、処理水流路と流出流路とを変形可能な可撓性材料にて形成すると共に水質測定器の上下方向の配置位置を調節自在に形成することにより切替手段を構成して成ることを特徴とする請求項１に記載の水処理装置。

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【請求項７】　水質測定器の上下方向の配置位置を手動で調節するための操作レバーを設けて成ることを特徴とする請求項６に記載の水処理装置。

【請求項８】　水質測定器にシャフトを接続すると共にシャフトを上下方向に駆動する駆動源を設けて成ることを特徴とする請求項６に記載の水処理装置。

【請求項９】　感応部を保持するホルダー体を感応部が検水容器内に配置された状態で検水容器に対して上下動自在に設けることにより水質測定器を形成し、検水容器にホルダー体が下動した場合に閉塞されると共にホルダー体が上動した場合に開放される通気口を設けることにより、切替機構を構成して成ることを特徴とする請求項１に記載の水処理装置。

【請求項１０】　ホルダー体に電磁石を設けると共にこの電磁石の上方又は下方に他の電磁石を設け、各電磁石に供給される電力を制御することによりホルダー体の上下方向の配置位置を調節可能に形成して成ることを特徴とする請求項９に記載の水処理装置。

【請求項１１】　ホルダー体にシャフトを接続すると共にこのシャフトを上下方向に駆動する駆動源を設けて成ることを特徴とする請求項９に記載の水処理装置。

【請求項１２】　流入口から流出口に至る流路に、この流路における水の流通の有無を検知する通水検知部を設けて成ることを特徴とする請求項１乃至１１のいずれかに記載の水処理装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、浄水器やアルカリイオン整水器等のような原水に対して処理を行う水処理装置に関し、特に処理後の水の水質を検出する水質測定器を具備する水処理装置に関するものである。

【０００２】

【従来の技術】従来、水質検出用のセンサは研究用だけでなく、工業機器（特開昭５９－６９８８号公報等参照）や家庭用機器（実開昭５６－２２０９３号公報等参照）に組み込んで利用されている。近年家庭用水処理機器で水質を検知して表示し、あるいは検出された水質にて装置を制御するために、水質検出用のセンサとして、ガラス感応膜電極やイオン選択性電極からなる作用電極と比較電極とを備えるもののように、特定の水質を検出するために測定対象である水に接触させる感応部を備えた水質測定器を組み込んだものが実用化されてきており、更にこの水質測定器を利用する商品として電解水生成器（実開平５－２２０９３号公報、特開平５－６４７８５号公報等参照）や浴水温浴器（特開平６－３３５６７５号公報等参照）等も提案されている。

【０００３】このような水処理装置では、水質測定器を利用する場合、気泡が水質測定器の感応部に付着することにより水質の検出が阻害されて異常な出力を発し、正確な水質の測定ができなくなる場合がある。例えばアル

カリイオン整水器等のような電解水生成装置の場合には、水処理部である電解槽にて原水を電解処理する場合に、次のような反応により水素や酸素、塩素等のガス成分が生じてしまい、このガス成分が、水質測定器による水質の検出時に作用電極等の感応部に付着すると共に成長して気泡が生じて感応部を覆い、正確な水質の測定ができなくなるものである。

【０００４】・陰極側反応

$2H_2O+2e^- \rightarrow 2OH^- +H_2$

・陽極側反応

$2H_2O \rightarrow 4H^+ +O_2+4e^-$

$2Cl^- \rightarrow Cl_2+3e^-$

そこで、従来このようなガス成分を含む電解水等を水質測定器にて測定する場合には、特開平９－２３６５７０号公報で開示されているようにｐＨセンサ（水質測定器）の水導入部分の上流側に脈動発生装置を設けたり、あるいは特開平９－２４３５８８号公報に開示されているようにｐＨセンサ（水質測定器）の水導入部分と吐出部分との間の空間に螺旋状のガイド部材を設けたりすることで、感応部に付着した気泡を除去する技術が提案されてる。

【０００５】

【発明が解決しようとする課題】しかし、上記のようにして感応部における気泡の除去を行う場合には、感応部から気泡がある程度除去されることにより、異常出力の発生は抑制されるものの、気泡を完全に除去することは困難なものであって、依然として正確な水質の測定は困難なものであった。

【０００６】本発明は上記の点に鑑みて為されたものであり、原水に処理を施す水処理部と、水処理部による処理後の水の水質を測定する水質測定器とを具備する水処理装置であって、水質測定器の感応部における気泡の付着を防止して異常出力の発生を防止し、処理後の水の水質を正確に測定することができる水処理装置を提供することを目的とするものである。

【０００７】

【課題を解決するための手段】本発明の請求項１に係る水処理装置は、流入口から流出口に至る流路と、この流路を流通する原水に処理を施す水処理部１と、水処理部１による処理後の水の水質を測定する水質測定器２とを具備する水処理装置において、水質測定器２が処理後の水が供給される検水容器３と水質測定時に水に直接接触する感応部４とを備え、水処理部１における水の処理動作を停止した場合に感応部４が検水容器３内の水と接触している状態から感応部４が水に接触していない状態へと切り替え、次いで感応部４が検水容器３内の水と接触している状態へと切り替える切替機構を具備して成ることを特徴とするものである。

【０００８】また請求項２の発明は、請求項１において、水処理部１による処理後の水が流通する処理水流路５の下流側を排水流路６と排水流路６よりも小径の供給流路７とに分岐し、排水流路６に開閉弁８を設け、供給流路７の下流側を処理後の水を貯留する貯留部９に接続し、貯留部９と検水容器３とを接続管１０にて接続することにより切替機構を構成して成ることを特徴とするものである。

【０００９】また請求項３の発明は、請求項１において、水処理部１による処理後の水が流通する処理水流路５の下流側を検水容器３の下部に接続し、検水容器３内から流出する水の流路として、検水容器３の下部に下部流出流路１１ａを接続すると共に、下部流出流路１１ａよりも上方において検水容器３に上部流出流路１１ｂを接続し、下部流出流路１１ａに開閉弁８を設けることにより切替機構を構成して成ることを特徴とするものである。

【００１０】また請求項４の発明は、請求項１において、水処理部１による処理後の水が流通する処理水流路５の下流側を検水容器３に接続し、処理水流路５をバイパスするバイパス流路１２を設けると共にバイパス流路１２の配管途中に処理後の水を貯留する貯留部９と貯留部９よりも下流側における水の流通を制御する流水調整装置１３を設け、バイパス流路１２の下流側端部と処理水流路５との合流点と検水容器３との間において処理水流路５から排水流路６を分岐して設け、排水流路６に開閉弁８を設けることにより切替機構を構成して成ることを特徴とするものである。

【００１１】また請求項５の発明は、請求項１において、水処理部１による処理後の水が流通する処理水流路５の下流側を検水容器３に接続し、検水容器３に検水容器３内から流出する水が流通する流出流路１１を接続し、流出流路１１に開閉弁８を設け、検水容器３に検水容器３内へ空気を送出するエアーポンプ１４を設けることにより切替機構を構成して成ることを特徴とするものである。

【００１２】また請求項６の発明は、請求項１において、水処理部１による処理後の水が流通する処理水流路５の下流側を検水容器３に接続し、検水容器３に検水容器３内から流出する水が流通する流出流路１１を接続し、処理水流路５と流出流路１１とを変形可能な可撓性材料にて形成すると共に水質測定器２の上下方向の配置位置を調節自在に形成することにより切替手段を構成して成ることを特徴とするものである。

【００１３】また請求項７の発明は、請求項６において、水質測定器２の上下方向の配置位置を手動で調節するための操作レバー１５を設けて成ることを特徴とするものである。

【００１４】また請求項８の発明は、請求項６において、水質測定器２にシャフト１６を接続すると共にシャフト１６を上下方向に駆動する駆動源１７を設けて成ることを特徴とするものである。

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【００１５】また請求項９の発明は、請求項１において、感応部４を保持するホルダー体１８を感応部４が検水容器３内に配置された状態で検水容器３に対して上下動自在に設けることにより水質測定器２を形成し、検水容器３にホルダー体１８が下動した場合に閉塞されると共にホルダー体１８が上動した場合に開放される通気口１９を設けることにより、切替機構を構成して成ることを特徴とするものである。

【００１６】また請求項１０の発明は、請求項９において、ホルダー体１８に電磁石２０ａを設けると共にこの電磁石２０ａの上方又は下方に他の電磁石２０ｂを設け、各電磁石２０ａ，２０ｂに供給される電力を制御することによりホルダー体１８の上下方向の配置位置を調節可能に形成して成ることを特徴とするものである。

【００１７】また請求項１１の発明は、請求項９において、ホルダー体１８にシャフト１６を接続すると共にこのシャフト１６を上下方向に駆動する駆動源１７を設けて成ることを特徴とするものである。

【００１８】また請求項１２の発明は、請求項１乃至１１のいずれかにおいて、流入口から流出口に至る流路に、この流路における水の流通の有無を検知する通水検知部２１を設けて成ることを特徴とするものである。

【００１９】

【発明の実施の形態】以下、本発明の実施の形態を説明する。

【００２０】本発明にかかる水処理装置は、流入口から流出口に至る流路の配管途中に、水処理部１として電解槽、浄化フィルター、ミネラル分添加装置等を配設し、この水処理部１よりも下流側には水処理部１にて処理された後の水（処理水）の水質を測定する水質測定器２が配設されている。

【００２１】水質測定器２は、測定対象である水のｐＨ、イオン濃度、電気伝導度等の水質を測定するものであり、後述する図１～６に示す実施の形態では、水質測定装置は検出対象である処理水が供給される検水容器３と、ホルダー体１８とから構成されている。検水容器３は上方が開口する容器であり、その内周面にはＯ－リングやパッキン材等からなる水密材２５が設けられている。ホルダー体１８は比較電極や作用電極等の検知端子２２を保持するものであり、この検知端子２２はホルダー部１８のハウジング２３から下方に向けて延出するように配設されている。検知端子２２は感応部４を有し、この感応部４を測定対象である水に直接接触させることで水質を測定する。例えば検知端子２２がガラス電極やイオン選択性電極等の作用電極と比較電極とから構成される場合にはガラス電極のガラス感応膜、イオン選択性電極のイオン選択性感応膜、比較電極の液絡部等が感応部４となる。そして感応部４を検水容器３内に配置した状態でハウジング２３の外周面を検水容器３の内周面に摺接させることによりホルダー体１８と検水容器３とが

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一体化されて、水質測定器２が構成されている。このときハウジング２３の外面と検水容器３の内面との間には水密材２５が介装されて水密性が確保されている。

【００２２】この水質測定器２にて測定された水質は、適宜の表示手段にて表示して使用者に生成される処理水の水質を知らせたり、あるいは水処理部１にて生成される処理水が所望の水質となるように処理条件を制御するためなどに用いられる。

【００２３】本発明は、流入口からの水の供給が停止された場合に上記の水質測定器２の感応部４が処理水と接触しない状態とし、更にその後に感応部４が処理水中に浸漬されて感応部４が水と接触する状態へと切り替える切替機構を備えるものであり、これにより、水処理動作の停止後に感応部４表面の気泡を除去し、水質測定器２における異常出力の発生を抑制して正確な水質の測定を行うようにしたものである。

【００２４】以下に具体的な実施形態を示す。

【００２５】図１に示す実施形態では、上流側が原水の流入口に連通する原水流路２４の下流側端部が、水処理部１に接続されている。また水処理部１からは水処理部１内にて処理された後の原水（処理水）が流通する処理水流路５が導出されており、この処理水流路５の配管途中には、圧力センサ又は流量センサ、あるいはこれらの組み合わせなどから構成される通水検知部２１が設けられている。また処理水流路５は下流側で排水流路６と、排水流路６よりも小径の供給流路７とに分岐される。排水流路６は下流側が下方に向けて延出されており、その配管途中には、電磁弁等で構成される開閉弁８が設けられている。また供給流路７は下流側が側方に向けて延出されており、その下流側端部は中空容器にて構成された貯留部９の側面に接続されている。また貯留部９の底部からは接続管１０が導出されており、この接続管１０の下流側端部は水質測定器２の検水容器３の下部側面に連通接続されている。また検水容器３からは、接続管１０の接続位置よりも上方かつ感応部４の配置位置よりも上方において、側面から流出流路１１が導出されており、この流出流路１１の下流側は流出口に連通される。また図示はしていないが、通水検知部２１による検知結果に基づいて開閉弁８の動作を制御する制御部も設けられる。

【００２６】このように構成される水処理装置では、水処理動作時には流入口から原水が供給され、原水は原水流路２４を流通して水処理部１に供給されて、所定の処理が施される。水処理部１における処理により生成される処理水は、処理水流路５を通じて水処理部１から導出される。このとき通水検知部２１において水の流通が検知され、この通水検知部２１により検知結果が制御部に入力されると、制御部は開閉弁８を閉じて排水流路６における水の流通を阻止するように制御を行う。このため処理水は処理水流路５から供給流路７を介して貯留部９

内に流入して貯留部９内に処理水が一旦貯留された後に、接続管１０を通じて水質測定器２の検水容器３内に流入し、検水容器３内においてホルダー体１８の感応部４が処理水中に浸漬されて、水質の測定が行われる。次いで処理水は流出流路１１を通じて流出口に送られ、装置外に導出される。

【００２７】また、流入口からの水の供給を停止して水処理動作を停止させる場合には、水処理部１から処理水流路５へ処理水が流出しなくなり、処理水流路５内では処理水が滞留して処理水が流通しなくなる。このとき通水検知部２１においては水が流通していないことが検知され、この検知結果が制御部に入力されると、制御部は開閉弁８を開いて排水流路６における水の流通を開放する。このため処理水流路５内に滞留している処理水は供給流路７よりも大径の排水流路６に優先的に流入して、排水流路６を通じて排水されるものであり、このときアスピレーション効果によって供給流路７を逆流して貯留部９内の処理水が排水流路６に流入し、それに伴って検水容器３内の処理水が接続管１０を逆流して貯留部９に向けて流入するものであり、これらの処理水の流れは流出流路１１から空気が検水容器３内に流入することで確保される。このため、検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるようになるものであり、このとき処理水の水質測定中に感応部４に気泡が付着している場合には比較的大きい気泡が感応部４から除去されて、処理水と共に排水流路６から排出される。また制御部は開閉弁８を開いてから検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるまでに要する一定時間が経過した後に、開閉弁８を再び閉じるように制御を行う。このとき、貯留部９内の処理水が接続管１０を通じて検水容器３に流入して、感応部４が再び処理水に浸漬されるものであり、このとき感応部４に小さな気泡が残存している場合にはこの気泡が除去されて処理水中に拡散する。

【００２８】従って水処理動作を停止するごとに水質測定器２の感応部４から気泡を完全に除去することができ、感応部４に付着した気泡の成長による水質測定器２での異常出力の発生を防止して、正確な水質の測定を行うことができるようになるものである。

【００２９】図２に示す実施形態では、図示はしていないが図１に示すものと同様に原水流路２４と処理水流路５とが接続された水処理部１が設けられ、処理水流路５には通水検知部２１が設けられる。また水処理部１から導出された処理水流路５が、感応部４よりも下方において、水質測定器２の検水容器３の下部側面に接続されている。また検水容器３から流出する水の流路として、下部流出流路１１ａと上部流出流路１１ｂとが検水容器３から導出されている。下部流出流路１１ａは感応部４の配置位置よりも下方における検水容器３の下部側面から導出され、その下流側が下方に向けて延出されているものであり、その配管途中には電磁弁等で構成される開閉弁８が設けられている。一方、上部流出流路１１ｂは下部流出流路１１ａの接続位置よりも上方かつ感応部４の配置位置よりも上方において検水容器３の側面から導出されており、その下流側が下方に向けて延出されている。また図示はしていないが、通水検知部２１による検知結果に基づいて開閉弁８の動作を制御する制御部も設けられる。

【００３０】このように構成される水処理装置では、水処理動作時には流入口から原水が供給され、原水は原水流路２４を流通して水処理部１に供給されて、所定の処理が施される。水処理部１における原水の処理により生成される処理水は、処理水流路５を通じて水処理部１から導出されて水質測定器２の検水容器３に流入する。このとき通水検知部２１において水の流通が検知され、この通水検知部２１により検知結果が制御部に入力されると、制御部は開閉弁８を閉じて下部流出流路１１ａにおける水の流通を阻止するように制御を行う。処理水流路５を流通する処理水は水質測定器２の検水容器３に流入し、検水容器３内においてホルダー体１８の感応部４が処理水中に浸漬されて、水質の測定が行われる。次いで、上記のように下部流出流路１１ａにおける水の流通が阻止されているために、検水容器３内に処理水は上部流出流路１１ｂのみに流入し、この上部流出流路１１ｂを通じて流出口に送られ、装置外に導出される。

【００３１】また、流入口からの水の供給を停止して水処理動作を停止させる場合には、装置内の水の流路における水の水位が上部流出流路１１ｂの配置位置まで達すると水処理部１から処理水流路５へ処理水が流出しなくなり、処理水流路５内では処理水が滞留して処理水が流通しなくなる。このとき通水検知部２１においては水が流通していないことが検知され、この検知結果が制御部に入力されると、制御部は開閉弁８を開いて下部流出流路１１ａにおける水の流通を開放する。このため検水容器３内の処理水は下部流出流路１１ａを通じて全て排水され、またこのとき処理水流路５からは検水容器３内に処理水が流入することとなるが、検水容器３における処理水流路５と下部流出流路１１ａの接続位置は感応部４よりも下方であるから、検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるようになるものであり、このとき処理水の水質測定中に感応部４に気泡が付着している場合には比較的大きな気泡が感応部４から除去されて、処理水と共に下部流出流路１１ａから排出される。また制御部は開閉弁８を開いてから検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるまでに要する一定時間が経過した後に、開閉弁８を再び閉じるように制御を行う。このとき、処理水流路５から流入する水により検水容器３内の液面が上がって感応部４が再び処理水に浸漬されるものであり、このとき感応部４に小さな気泡が残存している場合にはこの気

泡が除去されて処理水中に拡散する。

【００３２】従って水処理動作を停止するごとに水質測定器２の感応部４から気泡を完全に除去することができ、感応部４に付着した気泡の成長による水質測定器２での異常出力の発生を防止して、正確な水質の測定を行うことができるようになるものである。

【００３３】図３に示す実施形態では、図示はしていないが図１に示すものと同様に原水流路２４と処理水流路５とが接続された水処理部１が設けられ、処理水流路５には通水検知部２１が設けられる。また水処理部１から導出された処理水流路５が、水質測定器２の検水容器３の下部側面に接続されている。また処理水流路５には処理水流路５をバイパスするバイパス流路１２が連通接続されている。バイパス流路１２は上流側が処理水流路５から分岐して側方に延出された後に下方に延出されて、下流側端部が処理水流路５に合流するようになっている。バイパス流路１２の配管途中には中空容器からなる貯留部９が設けられ、更に貯留部９より下流側には、バイパス流路１２の貯留部９よりも下流側における水の流通量を制御する流量制御装置が配設されている。この流量制御装置は水の流通を開放する状態と阻止する状態とを切り替えたり、水を流通させる場合の流量を調節する機能を具備するものであり、バイパス流路１２の配管構成に応じて開閉弁８、ポンプあるいはこれらの組み合わせにて構成される。図示のように貯留部９よりも下流側でバイパス流路１２が下方に延出されている場合には、流量制御装置を開閉弁８又は開閉弁８とポンプとの組みあわせにて構成することができる。また処理水流路５にはバイパス流路１２の下流側端部との合流位置と検水容器３との間において排水流路６が分岐して設けられており、図示の例ではバイパス流路１２の下流側端部との合流位置から排水流路６が下方に向けて延出するように設けられている。この排水流路６の配管途中には、電磁弁等からなる開閉弁８が設けられている。また検水容器３からは感応部４の配置位置よりも上方における側面から流出流路１１が導出されており、その下流側が下方に向けて延出されている。また図示はしていないが、通水検知部２１による検知結果に基づいて開閉弁８及び流水調整装置１３の動作を制御する制御部も設けられる。

【００３４】このように構成される水処理装置では、水処理動作時には流入口から原水が供給され、原水は原水流路２４を流通して水処理部１に供給されて、所定の処理が施される。水処理部１における原水の処理により生成される処理水は、処理水流路５を通じて水処理部１から導出されて水質測定器２の検水容器３に流入する。このとき通水検知部２１において水の流通が検知され、この通水検知部２１により検知結果が制御部に入力されると、制御部は開閉弁８を閉じて排水流路６における水の流通を阻止すると共に流水調整装置１３にて貯留部９より下流側のバイパス流路１２での水の流通を阻止する制御を行う。処理水流路５を流通する処理水は水質測定器２の検水容器３に流入し、検水容器３内においてホルダー体１８の感応部４が処理水中に浸漬されて、水質の測定が行われた後、流出流路１１を通じて流出口から装置外に排出される。またこの処理水流路５を流通する処理水の一部はバイパス流路１２に流入して貯留部９内に貯留される。

【００３５】また、流入口からの水の供給を停止して水処理動作を停止させる場合には、水処理部１から処理水流路５へ処理水が流出しなくなり、処理水流路５内では処理水が滞留して処理水が流通しなくなる。このとき通水検知部２１においては水が流通していないことが検知され、この検知結果が制御部に入力されると、制御部は開閉弁８を開いて排水流路６における水の流通を開放する。このため検水容器３内の処理水は処理水流路５を逆流して排水流路６から排水され、この処理水の流れは流出流路１１から空気が検水容器３内に流入することで確保される。このため検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるようになるものであり、このとき処理水の水質測定中に感応部４に気泡が付着している場合には比較的大きな気泡が感応部４から除去されて、処理水と共に排水流路６から排出される。また制御部は開閉弁８を開いてから検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるまでに要する一定時間が経過した後に、開閉弁８を再び閉じるように制御を行うと共に、流水調整装置１３を制御して貯留部９よりも下流側において下流側に向かう水流を発生させる。このとき、貯留部９内の処理水はバイパス流路１２の下流側に流出して、処理水流路５を通じて検水容器３中に流入し、これにより検水容器３内の液面が上がって感応部４が再び処理水に浸漬されるものであり、このとき感応部４に小さな気泡が残存している場合にはこの気泡が除去されて処理水中に拡散する。

【００３６】従って水処理動作を停止するごとに水質測定器２の感応部４から気泡を完全に除去することができ、感応部４に付着した気泡の成長による水質測定器２での異常出力の発生を防止して、正確な水質の測定を行うことができるようになるものである。

【００３７】図４に示す実施形態では、図示はしていないが図１に示すものと同様に原水流路２４と処理水流路５とが接続された水処理部１が設けられ、処理水流路５には通水検知部２１が設けられる。また水処理部１から導出された処理水流路５が、水質測定器２の検水容器３の下部側面に接続されている。また検水容器３からは感応部４の配置位置よりも上方における側面から流出流路１１が導出されており、その下流側が下方に向けて延出されている。この流出流路１１には、流出流路１１における液体及び気体の流通を開閉する電磁弁等からなる開閉弁８が設けられる。また検水容器３には検水容器３内にエアーを送出するエアーポンプ１４が接続されてい

る。また図示はしていないが、通水検知部２１による検知結果に基づいて開閉弁８及びエアーポンプ１４の動作を制御する制御部も設けられる。

【００３８】このように構成される水処理装置では、水処理動作時には流入口から原水が供給され、原水は原水流路２４を流通して水処理部１に供給されて、所定の処理が施される。水処理部１における原水の処理により生成される処理水は、処理水流路５を通じて水処理部１から導出されて水質測定器２の検水容器３に流入する。このとき通水検知部２１において水の流通が検知され、この通水検知部２１により検知結果が制御部に入力されると、制御部は開閉弁８を開いて流出流路１１における水の流通を開放すると共にエアーポンプ１４を作動させないように制御を行う。処理水流路５を流通する処理水は水質測定器２の検水容器３に流入し、検水容器３内においてホルダー体１８の感応部４が処理水中に浸漬されて、水質の測定が行われた後に、流出流路１１を通じて流出口から装置外に流出される。

【００３９】また、流入口からの水の供給を停止して水処理動作を停止させる場合には、水処理部１から処理水流路５へ処理水が流出しなくなり、処理水流路５内では処理水が滞留して処理水が流通しなくなる。このとき通水検知部２１においては水が流通していないことが検知され、この検知結果が制御部に入力されると、制御部は開閉弁８を閉じて流出流路１１における水及び気体の流通を阻止すると共に、エアーポンプ１４を作動させて検水容器３内にエアーを送出する。このため検水容器３内の処理水はエアーの圧力により処理水流路５を逆流する。このため検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるようになるものであり、このとき処理水の水質測定中に感応部４に気泡が付着している場合には比較的大きな気泡が感応部４から除去される。また制御部は開閉弁８を閉じると共にエアーポンプ１４を作動させてから検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるまでに要する一定時間が経過した後に、エアーポンプ１４の作動を停止すると共に開閉弁８を開くように制御を行う。このとき貯留部９内には処理水流路５から処理水が流入し、これにより検水容器３内の液面が上がって感応部４が再び処理水に浸漬されるものであり、このとき感応部４に小さな気泡が残存している場合にはこの気泡が除去されて処理水中に拡散する。

【００４０】従って水処理動作を停止するごとに水質測定器２の感応部４から気泡を完全に除去することができ、感応部４に付着した気泡の成長による水質測定器２での異常出力の発生を防止して、正確な水質の測定を行うことができるようになるものである。

【００４１】図５に示す実施形態では、図示はしていないが図１に示すものと同様に原水流路２４と処理水流路５とが接続された水処理部１が設けられ、処理水流路５には通水検知部２１が設けられる。また水処理部１から導出された処理水流路５が、水質測定器２の検水容器３の下部側面に接続されている。また検水容器３からは感応部４の配置位置よりも上方における側面から流出流路１１が導出されている。また水質測定器２は、水処理装置のハウジングに対して直動レール等で上下方向に移動自在に支持するなどして、上下方向の配置位置を調節自在に形成されている。また図５（ａ）に示すものでは、水質測定器２に操作レバー１５を接続して設け、手動にてこの操作レバー１５を操作することにより水質測定器２の上下方向の配置位置を調節できるようになっており、また図５（ｂ）に示すものでは、水質測定器２の下端に上下方向のシャフト１６の上端を接続すると共にこのシャフト１６を上下方向に駆動させるモータ等の駆動源１７を接続しており、モータにてシャフト１６を上下方向に駆動させることにより水質測定器２の上下方向の配置位置を調節できるようになっている。また図示はしていないが、図５（ｂ）に示すものでは通水検知部２１による検知結果に基づいてモータ等の駆動源１７の動作を制御する制御部も設けられる。また上記の処理水流路５と流出流路１１とは、少なくとも一部が変形可能な可撓性材料から構成され、このため処理水流路５と流出流路１１の変形により、処理水流路５と流出流路１１とが検水容器３に接続された状態での水質測定器２の上下移動が確保される。この処理水流路５と流出流路１１は、例えば蛇腹状の樹脂材料にて形成された伸縮変形自在な管路で構成される。

【００４２】このように構成される水処理装置では、水処理動作時には流入口から原水が供給され、原水は原水流路２４を流通して水処理部１に供給されて、所定の処理が施される。水処理部１における原水の処理により生成される処理水は、処理水流路５を通じて水処理部１から導出されて水質測定器２の検水容器３に流入する。このとき図５（ａ）に示すものでは予め操作レバー１５を操作することにより検水容器３における流出流路１１の接続位置が水質測定器２よりも上流側での流路における水の液面よりも下方に配置されるように、水質測定器２の上下方向の配置位置を調節しておくものであり、また図５（ｂ）に示すものでは通水検知部２１において水の流通が検知され、この通水検知部２１により検知結果が制御部に入力されると、制御部はシャフト１６を駆動源１７にて駆動して、検水容器３における流出流路１１の接続位置が水質測定器２よりも上流側での流路における水の液面よりも下方に配置されるように、水質測定器２の上下方向の配置位置を調節する制御を行う。処理水流路５を流通する処理水は水質測定器２の検水容器３に流入し、検水容器３内においてホルダー体１８の感応部４が処理水中に浸漬されて、水質の測定が行われた後に、流出流路１１を通じて流出口から装置外に流出される。

【００４３】また、流入口からの水の供給を停止して水

処理動作を停止させる場合には、水処理部１から処理水流路５へ処理水が流出しなくなり、処理水流路５内では処理水が滞留して処理水が流通しなくなる。このとき、図５（ａ）に示すものでは手動にて操作レバー１５を操作して水質測定器２を上方に移動させることにより、検水容器３と処理水流路５との接続位置が水質測定器２よりも上流側における流路での水の水面よりも上方に配置されるように水質測定器２の配置位置を調節し、また図５（ｂ）に示すものでは通水検知部２１において水が流通していないことが検知され、この検知結果が制御部に入力されると、制御部はシャフト１６を駆動源１７にて駆動して、水質測定器２を上方に移動させることにより、検水容器３と処理水流路５との接続位置が水質測定器２よりも上流側における流路での水の水面よりも上方に配置されるように水質測定器２の配置位置を調節する制御を行う。このため検水容器３内の処理水は処理水流路５を逆流し、検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるようになるものであり、この処理水の流れは流出流路１１から空気が検水容器３内に流入することで確保される。このとき処理水の水質測定中に感応部４に気泡が付着している場合には比較的大きな気泡が感応部４から除去される。また図５（ａ）に示すものでは検水容器３内の液面が下がって感応部４が液面よりも上方に配置された後に手動にて操作レバー１５を操作して水質測定器２を下方に移動させることにより、検水容器３と流出流路１１との接続位置が水質測定器２よりも上流側における流路での水の水面よりも下方に配置されるように水質測定器２の配置位置を調節し、また図５（ｂ）に示すものでは制御部は水質測定器２を上記のように上方に移動させた後に検水容器３内の液面が下がって感応部４が液面よりも上方に配置されるまでに要する一定時間が経過した後に、シャフト１６を駆動源１７にて駆動して、検水容器３における流出流路１１の接続位置が水質測定器２よりも上流側での流路における水の液面よりも下方に配置されるように、水質測定器２の上下方向の配置位置を調節する制御を行う。このとき検水容器３内には処理水流路５から処理水が流入し、これにより検水容器３内の液面が上がって感応部４が再び処理水に浸漬されるものであり、このとき感応部４に小さな気泡が残存している場合にはこの気泡が除去されて処理水中に拡散する。

【００４４】従って水処理動作を停止するごとに水質測定器２の感応部４から気泡を完全に除去することができ、感応部４に付着した気泡の成長による水質測定器２での異常出力の発生を防止して、正確な水質の測定を行うことができるようになるものである。

【００４５】図６に示す実施形態では、図示はしていないが図１に示すものと同様に原水流路２４と処理水流路５とが接続された水処理部１が設けられ、処理水流路５には通水検知部２１が設けられる。また水処理部１から導出された処理水流路５が、水質測定器２の検水容器３の下部側面に接続されている。また検水容器３からは処理水流路５との接続位置よりも上方における側面から流出流路１１が導出されている。また検水容器３には水密材２５よりも上方における側面に通気口１９が設けられている。また水質測定器２のホルダー体１８は検水容器３に対して直動レール等で上下方向に移動自在に支持するなどして、ホルダー体１８の下端が水密材２５よりも下方に配置されてホルダー体１８と検水容器３の内側面とが水密材２５にて水密されると共に感応部４が検水容器３と流出流路１１との接続位置よりも下方に配置されている状態と、これよりもホルダー体１８が上方に配置されてホルダー体１８のハウジング２３の下端が水密材２５及び通気口１９よりも上方に配置されると共に感応部４が検水容器３と流出流路１１との接続位置よりも上方に配置されてる状態との間で、検水容器３に対する上下方向の配置位置を調節自在に形成されている。また図６（ａ）に示すものでは、ホルダー体１８の上端に上下方向のシャフト１６の上端を接続すると共にこのシャフト１６を上下方向に駆動させるモータ等の駆動源１７を接続しており、この駆動源１７にてシャフト１６を上下方向に駆動させることによりホルダー体１８を上動又は下動させてその検水容器３に対する上下方向の配置位置を調節できるようになっており、また図６（ｂ）に示すものではホルダー体１８の上端に電磁石２０ａを設けると共にこの電磁石２０ａの上方に、水処理装置のハウジングに対して他の電磁石２０ｂを設け、各電磁石２０ａ，２０ｂに供給する電力を調整することにより電磁石２０ａ，２０ｂ間に引力又は斥力を生じさせることによりホルダー体１８の上下方向の配置位置を調節できるようになっている。また図示はしていないが、図６（ａ）に示すものでは通水検知部２１による検知結果に基づいてモータ等の駆動源１７の動作を制御する制御部も設けられ、また図６（ｂ）に示すものでは通水検知部２１による検知結果に基づいて電磁石２０ａ、２０ｂに供給する電力を制御する制御部も設けられる。

【００４６】このように構成される水処理装置では、水処理動作時には流入口から原水が供給され、原水は原水流路２４を流通して水処理部１に供給されて、所定の処理が施される。水処理部１における原水の処理により生成される処理水は、処理水流路５を通じて水処理部１から導出されて水質測定器２の検水容器３に流入する。このとき通水検知部２１において水の流通が検知され、この通水検知部２１により検知結果が制御部に入力されると、図６（ａ）に示すものでは制御部はシャフト１６を駆動源１７にて駆動して、図６（ｂ）に示すものでは制御部は電磁石２０ａ，２０ｂに対する電力の供給を調整して、ホルダー体１８の下端が水密材２５よりも下方に配置されてホルダー体１８と検水容器３の内周面との間に水密性が確保されると共にホルダー体１８の側面にて

通気口１９が閉塞される状態となるようにホルダー体１８の上下方向の配置位置を調節する制御を行う。処理水流路５を流通する処理水は水質測定器２の検水容器３に流入し、検水容器３内においてホルダー体１８の感応部４が処理水中に浸漬されて、水質の測定が行われた後に、流出流路１１を通じて流出口から装置外に流出される。

【００４７】また、流入口からの水の供給を停止して水処理動作を停止させる場合には、水処理部１から処理水流路５へ処理水が流出しなくなり、処理水流路５内では処理水が滞留して処理水が流通しなくなる。このとき、通水検知部２１においては水が流通していないことが検知され、この検知結果が制御部に入力されると、図６（ａ）に示すものでは制御部はシャフト１６を駆動源１７にて駆動し、また図６（ｂ）に示すものでは制御部は電磁石２０ａ，２０ｂに供給される電力を調整して、ホルダー体１８を検水容器３に対して上方に移動させることにより、ホルダー体１８の下端が水密材２５及び通気口１９よりも上方に配置されると共に感応部４が検水容器３と流出容器との接続位置よりも上方に配置されるようにホルダー体１８の検水容器３に対する配置位置を調節する制御を行う。このため、検水容器３内の液面よりも感応部４が上方に配置されるようになるものであり、このとき通気口１９から検水容器３内に空気が流入することにより液面が検水容器３と流出流路１１との接続位置よりも上方に達しないようになって、感応部４が確実に液面よりも上方に配置される。このとき処理水の水質測定中に感応部４に気泡が付着している場合には比較的大きな気泡が感応部４から除去される。また制御部はホルダー体１８を上記のように上方に移動させた後に、図６（ａ）に示すものではシャフト１６を駆動源１７にて駆動し、図６（ｂ）に示すものでは電磁石２０ａ，２０ｂに供給する電力を制御して、ホルダー体１８の下端が水密材２５よりも下方に配置されてホルダー体１８と検水容器３の内側面とが水密材２５にて水密されると共に感応部４が検水容器３と流出流路１１との接続位置よりも下方に配置されるようにホルダー体１８の配置位置を調節する制御を行う。このとき感応部４は検水容器３内で処理水中に浸漬されるものであり、このとき感応部４に小さな気泡が残存している場合にはこの気泡が除去されて処理水中に拡散する。

【００４８】従って水処理動作を停止するごとに水質測定器２の感応部４から気泡を完全に除去することができ、感応部４に付着した気泡の成長による水質測定器２での異常出力の発生を防止して、正確な水質の測定を行うことができるようになるものである。

【００４９】

【発明の効果】上記のように本発明の請求項１に係る水処理装置は、流入口から流出口に至る流路と、この流路を流通する原水に処理を施す水処理部と、水処理部による処理後の水の水質を測定する水質測定器とを具備する水処理装置において、水質測定器が処理後の水が供給される検水容器と水質測定時に水に直接接触する感応部とを備え、水処理部における水の処理動作を停止した場合に感応部が検水容器内の水と接触している状態から感応部が水に接触していない状態へと切り替え、次いで感応部が検水容器内の水と接触している状態へと切り替える切替機構を具備するため、水処理部における水の処理動作を停止した際にまず感応部を水に接触していない状態として感応部に気泡が付着している場合に比較的大きい気泡を除去し、更に感応部を水と接触させて小さな気泡を除去することができ、水処理動作を停止するごとに感応部表面の気泡を除去して、水質測定器における異常出力の発生を抑制し、処理後の水の正確な水質の測定を行うことができるものである。

【００５０】また請求項２の発明は、請求項１において、水処理部による処理後の水が流通する処理水流路の下流側を排水流路と排水流路よりも小径の供給流路とに分岐し、排水流路に開閉弁を設け、供給流路の下流側を処理後の水を貯留する貯留部に接続し、貯留部と検水容器とを接続管にて接続することにより切替機構を構成するため、水処理動作を停止させた際に開閉弁を開いて排水流路における水の流通を開放して、処理水流路内に滞留している水を供給流路よりも大径の排水流路に優先的に流入させると共にアスピレーション効果によって供給管内で水を逆流させて貯留部内の水を排水流路に流入させ、それに伴って検水容器内の水を接続管を逆流させて貯留部に向けて流入させることができて、感応部が水に接触しない状態とすることができ、次いで開閉弁を再び閉じて貯留部内の水を接続流路を通じて検水容器に流入させ、感応部を再び水に浸漬せることにより感応部を水に接触させることができるものである。

【００５１】また請求項３の発明は、請求項１において、水処理部による処理後の水が流通する処理水流路の下流側を検水容器の下部に接続し、検水容器内から流出する水の流路として、検水容器の下部に下部流出流路を接続すると共に、下部流出流路よりも上方において検水容器に上部流出流路を接続し、下部流出流路に開閉弁を設けることにより切替機構を構成するため、水処理動作を停止させた際に開閉弁を開いて下部流出流路における水の流通を開放し、検水容器内の水を下部流出流路を通じて排水して、感応部が水に接触しない状態とすることができ、次いで開閉弁を再び閉じて処理水流路から検水容器に水を流入させて感応部を水に浸漬させることにより感応部を水と接触させることができるものである。

【００５２】また請求項４の発明は、請求項１において、水処理部による処理後の水が流通する処理水流路の下流側を検水容器に接続し、処理水流路をバイパスするバイパス流路を設けると共にバイパス流路の配管途中に処理後の水を貯留する貯留部と貯留部よりも下流側にお

ける水の流通を制御する流水調整装置を設け、バイパス流路の下流側端部と処理水流路との合流点と検水容器との間において処理水流路から排水流路を分岐して設け、排水流路に開閉弁を設けることにより切替機構を構成するため、水処理動作を停止させた際に開閉弁を開いて排水流路における水の流通を開放し、検水容器内の水を処理水流路を逆流させて排水流路から排水させて、感応部が水と接触しない状態とすることができ、次いで開閉弁を再び閉じて流水調整装置にて貯留部よりも下流側において下流側に向かう水流を発生させて貯留部内の水をバイパス流路から処理水流路を通じて検水溶液中に流入させることにより、感応部を水中に浸漬させて感応部を水と接触させることができるものである。

【００５３】また請求項５の発明は、請求項１において、水処理部による処理後の水が流通する処理水流路の下流側を検水容器に接続し、検水容器に検水容器内から流出する水が流通する流出流路を接続し、流出流路に開閉弁を設け、検水容器に検水容器内へ空気を送出するエアーポンプを設けることにより切替機構を構成するため、水処理動作を停止させた際に開閉弁を閉じて流出流路における水及び気体の流通を阻止すると共に、エアーポンプを作動させて検水容器内にエアーを送出することにより検水容器内の水をエアーの圧力により処理水流路を逆流させて、感応部が水と接触しない状態とすることができ、次いでエアーポンプの作動を停止すると共に開閉弁を開いて貯留部内に処理水流路から水が流入させることにより、感応部を水中に浸漬させて感応部を水と接触させることができるものである。

【００５４】また請求項６の発明は、請求項１において、水処理部による処理後の水が流通する処理水流路の下流側を検水容器に接続し、検水容器に検水容器内から流出する水が流通する流出流路を接続し、処理水流路と流出流路とを変形可能な可撓性材料にて形成すると共に水質測定器の上下方向の配置位置を調節自在に形成することにより切替手段を構成するため、水処理動作を停止させた際に、水質測定器の配置位置を上方に移動させて検水容器内の水を処理水流路を逆流させることにより、感応部が水と接触しない状態とすることができ、次いで水質測定器の配置位置を下方に移動させて検水容器内には処理水流路から水を流入させることにより、感応部を水中に浸漬させて感応部を水と接触させることができるものである。

【００５５】また請求項７の発明は、請求項６において、水質測定器の上下方向の配置位置を手動で調節するための操作レバーを設けるため、手動にて水質測定器の上下方向の配置位置を調節することができるものである。

【００５６】また請求項８の発明は、請求項６において、水質測定器にシャフトを接続すると共にシャフトを上下方向に駆動する駆動源を設けるため、自動制御にて水質測定器の上下方向の配置位置を調節することができるものである。

【００５７】また請求項９の発明は、請求項１において、感応部を保持するホルダー体を感応部が検水容器内に配置された状態で検水容器に対して上下動自在に設けることにより水質測定器を形成し、検水容器にホルダー体が下動した場合に閉塞されると共にホルダー体が上動した場合に開放される通気口を設けることにより、切替機構を構成するため、水処理動作を停止させた際に、ホルダー体を検水容器に対して上方に移動させると共に通気口から検水容器内に空気を流入させて、感応部を検水容器内に水の液面よりも上方に配置させることにより、感応部が水に接触しない状態とすることができ、次いでホルダー体を検水容器に対して下方に移動させて感応部を検水容器内に水中に浸漬させることにより、感応部を水と接触させることができるものである。

【００５８】また請求項１０の発明は、請求項９において、ホルダー体に電磁石を設けると共にこの電磁石の上方又は下方に他の電磁石を設け、各電磁石に供給される電力を制御することによりホルダー体の上下方向の配置位置を調節可能に形成するため、電磁石間の引力又は斥力によりホルダー体を上下方向に移動させることができるものである。

【００５９】また請求項１１の発明は、請求項９において、ホルダー体にシャフトを接続すると共にこのシャフトを上下方向に駆動する駆動源を設けるため、駆動源によりシャフトを上下方向に駆動させてホルダー体を上下方向に移動させることができるものである。

【００６０】また請求項１２の発明は、請求項１乃至１１のいずれかにおいて、流入口から流出口に至る流路に、この流路における水の流通の有無を検知する通水検知部を設けるため、通水検知部において水の通水が検知されなくなった場合に切替機構を作動させることにより、水処理動作を停止させた際に自動的に感応部表面からの気泡の除去を行うことができるものである。

【図面の簡単な説明】

【図１】本発明の実施の形態の一例を示す概略図である。

【図２】本発明の実施の形態の他例を示す概略図である。

【図３】本発明の実施の形態の更に他例を示す概略図である。

【図４】本発明の実施の形態の更に他例を示す概略図である。

【図５】（ａ）は本発明の実施の形態の他例を示す概略図、（ｂ）は更に別の例を示す概略図である。

【図６】（ａ）は本発明の実施の形態の他例を示す概略図、（ｂ）は更に別の例を示す概略図である。

【符号の説明】

１　水処理部

19

２　水質測定器
３　検水容器
４　感応部
５　処理水流路
６　排水流路
７　供給流路
８　開閉弁
９　貯留部
１０　接続管
１１　流出流路
１１ａ　下部流出流路
１１ｂ　上部流出流路

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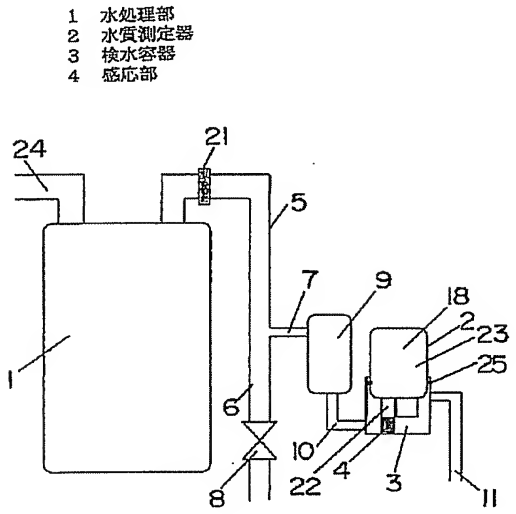
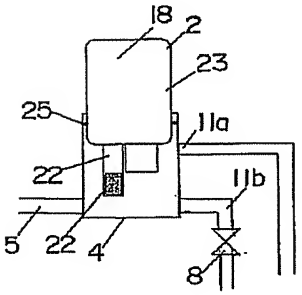
１２　バイパス流路
１３　流水調整装置
１４　エアーポンプ
１５　操作レバー
１６　シャフト
１７　駆動源
１８　ホルダー体
１９　通気口
２０ａ　電磁石
２０ｂ　電磁石
２１　通水検知部

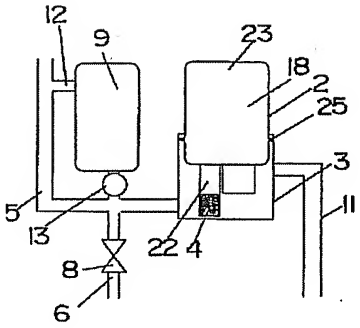
【図１】



【図２】



【図３】



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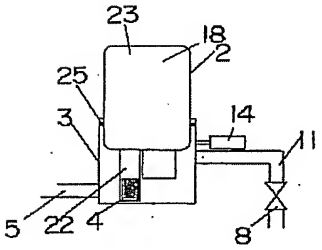

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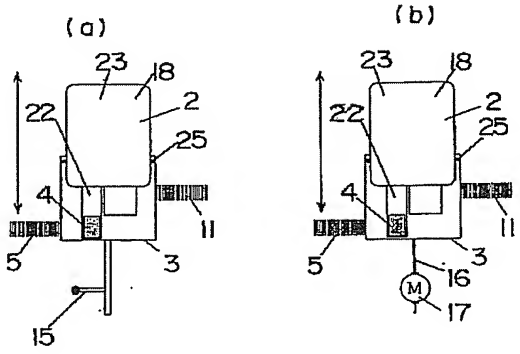
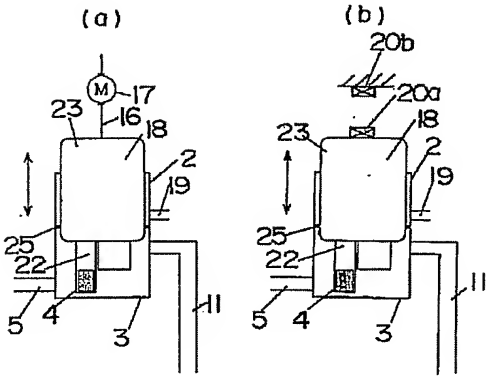
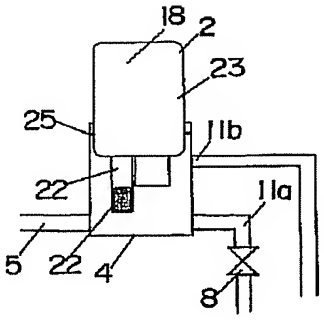


【図６】



【手続補正書】
【提出日】平成１３年１２月３日（２００１．１２．３）
【手続補正１】
【補正対象書類名】図面
【補正対象項目名】図２
【補正方法】変更
【補正内容】
【図２】



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// Ｇ０１Ｎ	27/08			27/08	
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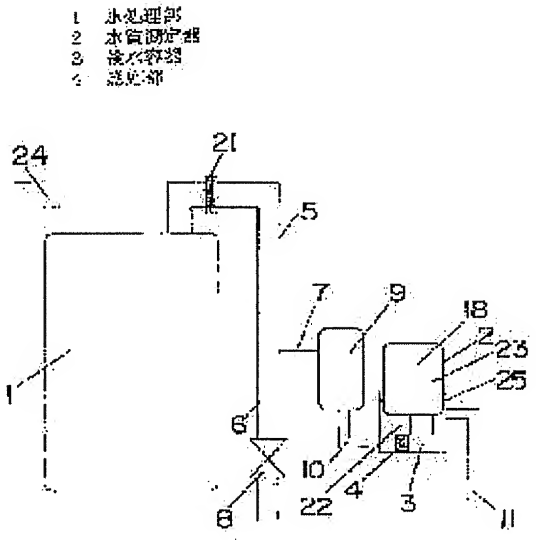
(71)Applicant : MATSUSHITA ELECTRIC WORKS LTD
(72)Inventor : INOUE HIROSHI
NISHIKAWA JUICHI

(54) WATER TREATING APPARATUS

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a water treating apparatus which includes a water treating part for treating raw water and a water quality measuring device for measuring the quality of water after the treatment of the raw water in the water treating part and can prevent the adherence of air bubbles in a sensing part of the water quality measuring device to prevent the occurrence of abnormal output and can accurately measure the quality of the treated water.
SOLUTION: In this water treating apparatus, the water quality measuring device 2 comprises a test water container 3, to which as-treated water is supplied, and the sensing part 4 which comes into direct contact with water at the time of water quality measurement. The water treating apparatus includes a switching mechanism such that, upon the stop of water treatment operation in the water treating part 1, the sensing part 4 is switched, from the state of contact with water within the test water container 3, to the state of noncontact with water, and is then switched again to the state of contact with water within the test water container 3.



LEGAL STATUS

[Date of request for examination]

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[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

CLAIMS

[Claim(s)]
[Claim 1] In the water treating unit possessing the passage from input to a tap hole, the water treatment section which processes to the raw water which circulates this passage, and the water quality measuring instrument which measures the water quality of the water after processing by the water treatment section Water is equipped with the induction section which contacts directly at the time of the test water container with which the water after a water quality measuring instrument processing is supplied, and water quality measurement. It changes from the condition that the induction section touches the water in a test water container when processing actuation of the water in the water treatment section is suspended to the condition that the induction section does not touch water. Subsequently, the water treating unit characterized by for the induction section possessing the change device changed to the condition of being in contact with the water in a test water container, and changing.
[Claim 2] The water treating unit according to claim 1 characterized by to constitute a change device and to change by branching the downstream of the treated-water passage where the water after processing by the water treatment section circulates on the feeder-current way of a minor diameter rather than wastewater passage and wastewater passage, preparing a closing-motion valve in wastewater passage, connecting with the reservoir section which stores the water after processing the downstream of a feeder current way, and connecting the reservoir section and a test-water container in a communication trunk.

[Claim 3] While connecting to the lower part of a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates and connecting lower outflow passage to the lower part of a test water container as passage of the water which flows out of the inside of a test water container The water treating unit according to claim 1 characterized by constituting a change device and changing by connecting up outflow passage to a test water container in the upper part, and preparing a closing motion valve in lower outflow passage rather than lower outflow passage.
[Claim 4] The downstream of the treated water passage where the water after processing by the water treatment section circulates is connected to a test water container. An adjusting device is formed. the stream which controls circulation of the water in the downstream rather than the reservoir section and the reservoir section which store the water after processing in the middle of piping of bypass passage while preparing the bypass passage which bypasses treated water passage — The water treating unit according to claim 1 characterized by constituting a change device and changing by branching and preparing wastewater passage from treated water passage between the juncture of the downstream edge of bypass passage, and treated water passage, and a test water container, and preparing a closing motion valve in wastewater passage.
[Claim 5] The water treating unit according to claim 1 characterized by to constitute a change device and to change by connecting to a test-water container the downstream of the treated-water passage where the water after processing by the water-treatment section circulates, connecting the outflow passage where the water which flows into a test-water container out of the inside of a test-water container circulates, preparing a closing-motion valve in outflow passage, and preparing the air pump which sends out air to a test-water container into a test-water container.
[Claim 6] The water treating unit according to claim 1 characterized by to constitute a change means and to change by forming the arrangement location of the vertical direction of a water-quality measuring instrument, enabling free accommodation while connect to a test-water container the downstream of the treated-water passage where the water after processing by the water-treatment section circulates, connect the outflow passage where the water which flows into a test-water container out of the inside of a test-water container circulates and forming treated-water passage and outflow passage with a deformable flexible material.
[Claim 7] The water treating unit according to claim 6 characterized by preparing the control lever for adjusting the arrangement location of the vertical direction of a water quality measuring instrument manually, and changing.
[Claim 8] The water treating unit according to claim 6 characterized by preparing the driving source which drives a shaft in the vertical direction while connecting a shaft to a water quality measuring instrument, and changing.
[Claim 9] The water treating unit according to claim 1 characterized by constituting a change device and changing by preparing the bleeder wide opened when an electrode-holder object upper-**, while being blockaded, when the induction section establishes the electrode-holder object holding the induction section free [vertical movement] to a test water container in the condition of having been arranged in a test water container, a water quality measuring instrument is formed and an electrode-holder object lower-** in a test water container.
[Claim 10] The water treating unit according to claim 9 characterized by forming possible [accommodation of the arrangement location of the vertical direction of an electrode-holder object], and changing by controlling the power which forms the electromagnet of upper [of this electromagnet], or others caudad while forming an electromagnet in an electrode-holder object, and is supplied to each electromagnet.
[Claim 11] The water treating unit according to claim 9 characterized by preparing the driving source which drives this shaft in the vertical direction while connecting a shaft to an electrode-holder object, and changing.
[Claim 12] The water treating unit according to claim 1 to 11 characterized by preparing the water flow detection section which detects the existence of circulation of the water in this passage in the passage from input to a tap hole, and growing into it.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the water treating unit possessing the water quality measuring instrument which detects the water quality of the water after processing especially about the water treating unit which processes to raw water, such as a water purifier and an alkali alkali-ion water conditioner.
[0002]
[Description of the Prior Art] Conventionally, the sensor for water quality detection is incorporated and used for not only the object for research but the industrial device (reference, such as JP,59-6988,A), or the domestic appliance (reference, such as JP,56-22093,U). In order to control equipment by the water quality which detected water quality, and displayed or was detected by the home water treatment device in recent years Although it has the working electrode and reference electrode which consist of a glass induction membrane electrode or an ion selective electrode as a sensor for water quality detection, like The thing incorporating the water quality measuring instrument equipped with the induction section contacted in the water which is the measuring object in order to detect specific water quality is put in practical use. Furthermore, the electrolysis water generation machine (reference, such as JP,5-22093,U and JP,5-64785,A), the bath water hot bath machine (reference, such as JP,6-335675,A), etc. are proposed as goods using this water quality measuring instrument.
[0003] In such a water treating unit, when using a water quality measuring instrument, and air bubbles adhere to the induction section of a water quality measuring instrument, detection of water quality is checked, an unusual output is emitted, and there is a case where measurement of exact water quality becomes impossible. For example, when carrying out electrolysis processing of the raw water with the cell which is the water treatment section, gas constituents, such as hydrogen, and oxygen, chlorine, arise by the following reactions, in the case of electrolysis water generation equipments, such as an alkali alkali-ion water conditioner, while these gas constituents adhere to the induction sections, such as a working electrode, at the time of detection of the water quality by the water quality measuring instrument, it grows up, and air bubbles arise in it, the induction section is cover in it, and measurement of exact water quality becomes impossible in it.
[0004] - a cathode side -- reaction 2H2O+2 -- e-->2OH-+H2 side and an anode plate side -- reaction 2H2O->4H++O2+4e- 2Cl-->Cl2+3e- there In measuring the electrolysis water containing such [conventionally] gas constituents etc. with a water quality measuring instrument As indicated by JP,9-236570,A form a pulsating generator in the upstream for water induction of pH sensor (water quality measuring instrument), or Or the technique of removing the air bubbles adhering to the induction section by preparing a spiral guide member in the space between parts for a part for the water induction of pH sensor (water quality measuring instrument) and a discharge part as indicated by JP,9-243588,A is proposed.
[0005]
[Problem(s) to be Solved by the Invention] However, although generating of an abnormality output was controlled by removing air bubbles from the induction section to some extent when air bubbles [in / as mentioned above / the induction section] were removed, it was difficult to remove air bubbles completely, and measurement of still exact water quality was difficult.
[0006] In view of the above-mentioned point, it succeeds in this invention, and it is a water treating unit possessing the water-treatment section which processes to raw water, and the water-quality measuring instrument which measures the water quality of the water after processing by the water treatment section, adhesion of the air bubbles in the induction section of a water quality measuring instrument is prevented, generating of an abnormality output is prevented, and it aims at offering the water treating unit which can measure the water quality of the water after processing correctly.
[0007]
[Means for Solving the Problem] In the water treating unit possessing passage with the water treating unit from input to [in passage] a tap hole concerning claim 1 of this invention, the water treatment section 1 which processes to the raw water which circulates this passage, and the water quality measuring instrument 2 which measures the water quality of the water after processing by the water treatment section 1 Water is equipped with the induction section 4 which contacts directly at the time of the test water container 3 with which the water after the water quality measuring instrument 2 processing is supplied, and water quality measurement. It changes from the condition that the induction section 4 touches the water in the test water container 3 when processing actuation of the water in the water treatment section 1 is suspended to the condition that the induction section 4 does not touch water. Subsequently, it is characterized by for the induction section 4 possessing the change device changed to the condition of being in contact with the water in the test water container 3, and changing.
[0008] Moreover, invention of claim 2 branches the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates on the feeder current way 7 of a minor diameter rather than the wastewater passage 6 and the wastewater passage 6 in claim 1. It is characterized by constituting a change device and changing by forming the closing motion valve 8 in the wastewater passage 6, connecting with the reservoir section 9 which stores the water after processing the downstream of the feeder current way 7, and connecting the reservoir section 9 and the test water container 3 by the communication trunk 10.
[0009] moreover, as passage of the water which invention of claim 3 connects to the lower part of the test water container 3 the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates in claim 1, and flows out of the inside of the test water container 3 While connecting lower outflow passage 11a to the lower part of the test water container 3, it is characterized by constituting a change device and changing by connecting up outflow passage 11b to the test water container 3 in the upper part, and forming the closing motion valve 8 in lower outflow passage 11a rather than lower outflow passage 11a.
[0010] Moreover, invention of claim 4 connects to the test water container 3 the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates in claim 1. An adjusting device 13 is formed. the stream which controls circulation of the water in the downstream rather than the reservoir section 9 and the reservoir section 9 which store the water after processing in the middle of piping of the bypass passage 12 while forming the bypass passage 12 which bypasses the treated water passage 5 -- It is characterized by constituting a change device and changing by branching and forming the wastewater passage 6 from the treated water passage 5 between the juncture of the downstream edge of the bypass passage 12, and the treated water passage 5, and the test water container 3, and forming the closing motion valve 8 in the wastewater passage 6.

[0011] Moreover, invention of claim 5 connects to the test water container 3 the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates in claim 1. It is characterized by constituting a change device and changing by connecting to the test water container 3 the outflow passage 11 where the water which flows out of the inside of the test water container 3 circulates, forming the closing motion valve 8 in the outflow passage 11, and forming the air pump 14 which sends out air to the test water container 3 into the test water container 3.
[0012] Moreover, invention of claim 6 connects to the test water container 3 the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates in claim 1. The outflow passage 11 where the water which flows out of the inside of the test water container 3 circulates is connected to the test water container 3. While forming the treated water passage 5 and the outflow passage 11 with a deformable flexible material, it is characterized by constituting a change means and changing by forming the arrangement location of the vertical direction of the water quality measuring instrument 2, enabling free accommodation.
[0013] Moreover, invention of claim 7 is characterized by forming the control lever 15 for adjusting the arrangement location of the vertical direction of the water quality measuring instrument 2 manually, and changing in claim 6.
[0014] Moreover, in claim 6, invention of claim 8 is characterized by forming the driving source 17 which drives a shaft 16 in the vertical direction, and changing while it connects a shaft 16 to the water quality measuring instrument 2.
[0015] Moreover, invention of claim 9 forms the water quality measuring instrument 2, when the induction section 4 establishes the electrode-holder object 18 holding the induction section 4 free [vertical movement] to the test water container 3 in claim 1 in the condition of having been arranged in the test water container 3. By forming the bleeder 19 wide opened when the electrode-holder object 18 upper-**, while being blockaded, when the electrode-holder object 18 lower-** in the test water container 3, it is characterized by constituting a change device and changing.
[0016] Moreover, in claim 9, invention of claim 10 prepares electromagnet 20b of upper [of this electromagnet 20a], or others caudad while preparing electromagnet 20a in the electrode-holder object 18, and it is characterized by forming possible [accommodation of the arrangement location of the vertical direction of the electrode-holder object 18], and changing by controlling the power supplied to each electromagnets 20a and 20b.
[0017] Moreover, in claim 9, invention of claim 11 is characterized by forming the driving source 17 which drives this shaft 16 in the vertical direction, and changing while it connects a shaft 16 to the electrode-holder object 18.
[0018] Moreover, invention of claim 12 is characterized by forming the water flow detection section 21 which detects the existence of circulation of the water in this passage in the passage from input to a tap hole, and growing into it in claim 1 thru/or either of 11.
[0019]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained.
[0020] the piping middle of passage with the water treating unit from input to [in passage] a tap hole concerning this invention -- as the water treatment section 1 -- a cell, a purification filter, and minerals -- addition equipment etc. is arranged and the water quality measuring instrument 2 which measures the water quality of water (treated water) after being processed by the downstream in the water treatment section 1 rather than this water treatment section 1 is arranged.
[0021] The water quality measuring instrument 2 measures water quality, such as pH of the water which is the measuring object, ion concentration, and electrical conductivity, and the water quality measuring device is constituted from the test water container 3 with which the treated water which is a candidate for detection is supplied, and the electrode-holder object 18 by the gestalt of operation shown in drawing 1 -6 mentioned later. The test water container 3 is a container in which the upper part carries out opening, and the watertight material 25 which consists of O ring, packing material, etc. is formed in the inner skin. The electrode-holder object 18 holds the detection terminals 22, such as a reference electrode and a working electrode, and this detection terminal 22 is arranged so that it may turn caudad from the housing 23 of the electrode-holder section 18 and may extend. The detection terminal 22 has the induction section 4, and water quality is measured by contacting this induction section 4 in the water which is the measuring object directly. For example, when the detection terminal 22 consists of a working electrode and reference electrodes, such as a glass electrode and an ion selective electrode, the liquid junction of the glass induction film of a glass electrode, the ion-selective induction film of an ion selective electrode, and a reference electrode etc. turns into the induction section 4. And by making the peripheral face of housing 23 **** to the inner skin of the test water container 3 in the condition of having arranged the induction section 4 in the test water container 3, the electrode-holder object 18 and the test water container 3 are unified, and the water quality measuring instrument 2 is constituted. At this time, the watertight material 25 is infixed between the external surface of housing 23, and the inside of the test water container 3, and watertightness is secured.
[0022] The water quality measured with this water quality measuring instrument 2 is used in order to tell the water quality of the treated water which expresses as a proper display means and is generated by the user, or to control processing conditions so that the treated water generated in the water treatment section 1 serves as desired water quality.
[0023] This invention is made into the condition that the induction section 4 of the above-mentioned water quality measuring instrument 2 does not contact treated water when supply of the water from input is suspended. It is what the induction section 4 equips with the change device changed to the condition that it is immersed into treated water and the induction section 4 contacts water after that. Furthermore, by this The air bubbles of induction section 4 front face are removed after a halt of water treatment actuation, generating of the abnormality output in the water quality measuring instrument 2 is controlled, and it is made to measure exact water quality.
[0024] A concrete operation gestalt is shown below.
[0025] With the operation gestalt shown in drawing 1 , the downstream edge of the raw water passage 24 which the upstream opens for free passage to the input of raw water is connected to the water treatment section 1. Moreover, from the water treatment section 1, the treated water passage 5 where the raw water (treated water) after being processed within the water treatment section 1 circulates is drawn, and the water flow detection section 21 which consists of a pressure sensor, flow rate sensors, or such combination is formed in the middle of piping of this treated water passage 5. Moreover, the treated water passage 5 branches on the feeder current way 7 of a minor diameter rather than the wastewater passage 6 and the wastewater passage 6 by the downstream. The downstream turned the wastewater passage 6 caudad, it has extended, and the closing motion valve 8 which consists of solenoid valves etc. is formed in the middle of the piping. Moreover, the downstream has extended towards the side and, as for the feeder current way 7, is connected to the side face of the reservoir section 9 in which the downstream edge consisted of hollow containers. Moreover, the communication trunk 10 is drawn from the pars

basilaris ossis occipitalis of the reservoir section 9, and free passage connection of the downstream edge of this communication trunk 10 is made on the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, rather than the connecting location of the communication trunk 10 from the test water container 3, in the upper part, the outflow passage 11 is drawn from the side face rather than the upper part and the arrangement location of the induction section 4, and the downstream of this outflow passage 11 is opened for free passage by the tap hole. Moreover, although illustration has not been carried out, the control section which controls actuation of the closing motion valve 8 based on the detection result by the water flow detection section 21 is also prepared.

[0026] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by the processing in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5. If circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21, a control section will control to close the closing motion valve 8 and to prevent circulation of the water in the wastewater passage 6. For this reason, once treated water flows in the reservoir section 9 through the feeder current way 7 from the treated water passage 5 and treated water is stored in the reservoir section 9, it flows in the test water container 3 of the water quality measuring instrument 2 through a communication trunk 10, it is immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3, and measurement of water quality is performed. Subsequently, treated water is sent to a tap hole through the outflow passage 11, and is drawn out of equipment.

[0027] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. If it is detected that water is not circulating in the water flow detection section 21 at this time and this detection result is inputted into a control section, a control section will open the closing motion valve 8, and will open circulation of the water in the wastewater passage 6. For this reason, the treated water which is piling up in the treated water passage 5 flows with the priority [way / 7 / feeder current] to the wastewater passage 6 of a major diameter. Are drained through the wastewater passage 6, and at this time, according to the ASUPIRESHON effectiveness, flow backwards the feeder current way 7 and the treated water in the reservoir section 9 flows into the wastewater passage 6. In connection with it, the treated water in the test water container 3 flows backwards a communication trunk 10, it flows towards the reservoir section 9, and the flow of these treated water is secured because air flows in the test water container 3 from the outflow passage 11. For this reason, when the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level and air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively large air bubbles are removed from the induction section 4, and are discharged from the wastewater passage 6 with treated water. Moreover, a control section controls to close the closing motion valve 8 again, after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level after opening the closing motion valve 8 passes. At this time, when the treated water in the reservoir section 9 flows into the test water container 3 through a communication trunk 10, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time, these air bubbles are removed and it is spread in treated water.

[0028] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.

[0029] With the operation gestalt shown in drawing 2 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, rather than the induction section 4, the treated water passage 5 drawn from the water treatment section 1 sets caudad, and is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, as passage of the water which flows out of the test water container 3, lower outflow passage 11a and up outflow passage 11b are drawn from the test water container 3. Lower outflow passage 11a was drawn from the lower side face of the test water container 3 which can be caudad set rather than the arrangement location of the induction section 4, and the downstream turns it caudad, it has extended, and the closing motion valve 8 constituted with a solenoid valve etc. is formed in the middle of the piping. On the other hand, rather than the connecting location of lower outflow passage 11a, rather than the upper part and the arrangement location of the induction section 4, up outflow passage 11b is drawn from the side face of the test water container 3 in the upper part, and the downstream turned it caudad, and it has extended. Moreover, although illustration has not been carried out, the control section which controls actuation of the closing motion valve 8 based on the detection result by the water flow detection section 21 is also prepared.

[0030] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. If circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21, a control section will control to close the closing motion valve 8 and to prevent circulation of the water in lower outflow passage 11a. The treated water which circulates the treated water passage 5 flows into the test water container 3 of the water quality measuring instrument 2, it is immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3, and measurement of water quality is performed. Subsequently, since circulation of the water in lower outflow passage 11a is prevented as mentioned above, in the test water container 3, treated water flows only at up outflow passage 11b, and is sent to a tap hole through this up outflow passage 11b, and it is drawn out of equipment.

[0031] When the water level of the water in the passage of the water in equipment reaches to the arrangement location of up outflow passage 11b, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5, in suspending supply of the water from input and stopping water treatment actuation. If it is detected that water is not circulating in the water flow detection

section 21 at this time and this detection result is inputted into a control section, a control section will open the closing motion valve 8, and will open circulation of the water in lower outflow passage 11a. For this reason, although the treated water in the test water container 3 will be altogether drained through lower outflow passage 11a and treated water will flow in the test water container 3 from the treated water passage 5 at this time Rather than the induction section 4, since the treated water passage 5 in the test water container 3 and the connecting location of lower outflow passage 11a are lower parts When the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level and air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4, and are discharged from lower outflow passage 11a with treated water. Moreover, a control section controls to close the closing motion valve 8 again, after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level after opening the closing motion valve 8 passes. At this time, when the oil level in the test water container 3 goes up with the water which flows from the treated water passage 5, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time, these air bubbles are removed and it is spread in treated water.

[0032] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.

[0033] With the operation gestalt shown in drawing 3 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, the treated water passage 5 drawn from the water treatment section 1 is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, free passage connection of the bypass passage 12 which bypasses the treated water passage 5 is made in the treated water passage 5. The bypass passage 12 extends caudad, after the upstream branches from the treated water passage 5 and extends to the side, and a downstream edge joins the treated water passage 5. The reservoir section 9 which consists of a hollow container in the middle of piping of the bypass passage 12 is formed, and the flow rate control unit which controls the amount of circulation of the water in the downstream rather than the reservoir section 9 of the bypass passage 12 is further arranged in the downstream from the reservoir section 9. This flow rate control unit changes the condition of preventing with the condition of opening circulation of water, or possesses the function to adjust the flow rate in the case of circulating water, and consists of a closing motion valve 8, pumps, or such combination according to the piping configuration of the bypass passage 12. When the bypass passage 12 has extended caudad by the downstream rather than the reservoir section 9 like illustration, the flow rate control unit can be combined as the closing motion valve 8 or the closing motion valve 8, and the pump, and can be constituted. Moreover, the wastewater passage 6 is branched and established in the treated water passage 5 between the unification location with the downstream edge of the bypass passage 12, and the test water container 3, and in the example of illustration, it is prepared so that the wastewater passage 6 may turn caudad and may extend from a unification location with the downstream edge of the bypass passage 12. The closing motion valve 8 which consists of a solenoid valve etc. is formed in the middle of piping of this wastewater passage 6. Moreover, from the test water container 3, the outflow passage 11 is drawn from the upper side face rather than the arrangement location of the induction section 4, and the downstream turned caudad and has extended. moreover, the detection result by the water flow detection section 21 although illustration has not been carried out -- being based -- the closing motion valve 8 and a stream -- the control section which controls actuation of an adjusting device 13 is also prepared.

[0034] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. if circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21, while a control section will close the closing motion valve 8 and preventing circulation of the water in the wastewater passage 6 -- a stream -- control which prevents circulation of the water in the bypass passage 12 of the downstream from the reservoir section 9 with an adjusting device 13 is performed. The treated water which circulates the treated water passage 5 is discharged out of equipment from a tap hole through the outflow passage 11, after flowing into the test water container 3 of the water quality measuring instrument 2, being immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3 and performing measurement of water quality. Moreover, some treated water which circulates this treated water passage 5 flows into the bypass passage 12, and it is stored in the reservoir section 9.

[0035] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. If it is detected that water is not circulating in the water flow detection section 21 at this time and this detection result is inputted into a control section, a control section will open the closing motion valve 8, and will open circulation of the water in the wastewater passage 6. For this reason, the treated water in the test water container 3 flows backwards the treated water passage 5, and is drained from the wastewater passage 6, and the flow of this treated water is secured from the outflow passage 11 because air flows in the test water container 3. For this reason, when the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level and air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4, and are discharged from the wastewater passage 6 with treated water. moreover -- after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level after a control section opens the closing motion valve 8 passes, while controlling to close the closing motion valve 8 again -- a stream -- the stream which controls an adjusting device 13 and goes to the downstream in the downstream rather than the reservoir section 9 is generated. At this time, these air bubbles are removed and the treated water in the reservoir section 9 is diffused in treated water, when flow into the downstream of the bypass passage 12 and it flows into the test water container 3 through the treated water passage 5, and the oil level in the test water container 3 goes up by this, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time.

[0036] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.
[0037] With the operation gestalt shown in drawing 4 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, the treated water passage 5 drawn from the water treatment section 1 is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, from the test water container 3, the outflow passage 11 is drawn from the upper side face rather than the arrangement location of the induction section 4, and the downstream turned caudad and has extended. The closing motion valve 8 which consists of a solenoid valve which opens and closes circulation of the liquid in the outflow passage 11 and a gas is formed in this outflow passage 11. Moreover, the air pump 14 which sends out Ayr in the test water container 3 is connected to the test water container 3. Moreover, although illustration has not been carried out, the control section which controls actuation of the closing motion valve 8 and an air pump 14 based on the detection result by the water flow detection section 21 is also prepared.
[0038] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. If circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21, a control section will control not to operate an air pump 14 while it opens the closing motion valve 8 and opens circulation of the water in the outflow passage 11. The treated water which circulates the treated water passage 5 flows out of a tap hole out of equipment through the outflow passage 11, after flowing into the test water container 3 of the water quality measuring instrument 2, being immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3 and performing measurement of water quality.
[0039] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. If it is detected that water is not circulating in the water flow detection section 21 at this time and this detection result is inputted into a control section, a control section operates an air pump 14 and sends out Ayr in the test water container 3 while it closes the closing motion valve 8 and prevents circulation of the water in the outflow passage 11, and a gas. For this reason, the treated water in the test water container 3 flows backwards the treated water passage 5 with the pressure of Ayr. For this reason, the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level, and when air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4. Moreover, after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level since an air pump 14 is operated while closing the closing motion valve 8 passes, a control section controls to open the closing motion valve 8 while suspending actuation of an air pump 14. When treated water flows from the treated water passage 5 in the reservoir section 9 at this time, and the oil level in the test water container 3 goes up by this, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time, these air bubbles are removed and it is spread in treated water.
[0040] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.
[0041] With the operation gestalt shown in drawing 5 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, the treated water passage 5 drawn from the water treatment section 1 is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, an upper side face to the outflow passage 11 is drawn from the test water container 3 rather than the arrangement location of the induction section 4. Moreover, to housing of a water treating unit, by the direct-acting rail etc., the water quality measuring instrument 2 is supported in the vertical direction free [migration], and is formed in it for the arrangement location of the vertical direction, enabling free accommodation. Moreover, in what is shown in drawing 5 (a), a control lever 15 is connected and formed in the water quality measuring instrument 2. In what can adjust now the arrangement location of the vertical direction of the water quality measuring instrument 2, and is shown in drawing 5 (b) by operating this control lever 15 manually The driving sources 17, such as a motor which makes this shaft 16 drive in the vertical direction while connecting the upper limit of the shaft 16 of the vertical direction to the lower limit of the water quality measuring instrument 2, are connected. The arrangement location of the vertical direction of the water quality measuring instrument 2 can be adjusted now by making a shaft 16 drive in the vertical direction by the motor. Moreover, although illustration has not been carried out, the control section which controls actuation of the driving sources 17, such as a motor, by what is shown in drawing 5 (b) based on the detection result by the water flow detection section 21 is also prepared. Moreover, the above-mentioned treated water passage 5 and the above-mentioned outflow passage 11 consist of flexible materials at least with a deformable part, and, for this reason, vertical migration of the water quality measuring instrument 2 in the condition that the treated water passage 5 and the outflow passage 11 were connected to the test water container 3 according to deformation of the treated water passage 5 and the outflow passage 11 is secured. This treated water passage 5 and the outflow passage 11 consist of ducts which were formed with the resin ingredient of the shape for example, of bellows and in which flexible deformation is free.
[0042] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality

measuring instrument 2. By operating a control lever 15 beforehand in what is shown in drawing 5 (a) at this time, so that it may be caudad arranged rather than the oil level of water [in / from the water quality measuring instrument 2 / in the connecting location of the outflow passage 11 in the test water container 3 / the passage in the upstream] If the arrangement location of the vertical direction of the water quality measuring instrument 2 is adjusted, circulation of water is detected in the water flow detection section 21 in what is shown in drawing 5 (b) and a detection result is inputted into a control section by this water flow detection section 21 A control section drives a shaft 16 by the driving source 17, and performs control to which the connecting location of the outflow passage 11 in the test water container 3 adjusts the arrangement location of the vertical direction of the water quality measuring instrument 2 so that it may be caudad arranged rather than the oil level of water [in / from the water quality measuring instrument 2 / the passage in the upstream]. The treated water which circulates the treated water passage 5 flows out of a tap hole out of equipment through the outflow passage 11, after flowing into the test water container 3 of the water quality measuring instrument 2, being immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3 and performing measurement of water quality.

[0043] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. By operating a control lever 15 manually by what is shown in drawing 5 (a) at this time, and moving the water quality measuring instrument 2 up Rather than the water quality measuring instrument 2, the connecting location of the test water container 3 and the treated water passage 5 adjusts the arrangement location of the water quality measuring instrument 2 so that it may be arranged more nearly up than the water surface of the water in the passage in the upstream. Moreover, if it is detected that water is not circulating in the water flow detection section 21 in what is shown in drawing 5 R> 5 (b) and this detection result is inputted into a control section By a control section's driving a shaft 16 by the driving source 17, and moving the water quality measuring instrument 2 up The connecting location of the test water container 3 and the treated water passage 5 performs control which adjusts the arrangement location of the water quality measuring instrument 2 so that it may be arranged more nearly up than the water surface of the water in the passage in the upstream rather than the water quality measuring instrument 2. For this reason, the treated water in the test water container 3 flows backwards the treated water passage 5, the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level, and the flow of this treated water is secured from the outflow passage 11 because air flows in the test water container 3. When air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4. Moreover, by operating a control lever 15 manually and moving the water quality measuring instrument 2 caudad, after the oil level in the test water container 3 fell in what is shown in drawing 5 (a) and the induction section 4 has been arranged more nearly up than an oil level Rather than the water quality measuring instrument 2, the connecting location of the test water container 3 and the outflow passage 11 adjusts the arrangement location of the water quality measuring instrument 2 so that it may be caudad arranged rather than the water surface of the water in the passage in the upstream. Moreover, after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level after a control section moves the water quality measuring instrument 2 up as mentioned above to what is shown in drawing 5 (b) passes A shaft 16 is driven by the driving source 17, and rather than the water quality measuring instrument 2, the connecting location of the outflow passage 11 in the test water container 3 performs control which adjusts the arrangement location of the vertical direction of the water quality measuring instrument 2 so that it may be caudad arranged rather than the oil level of the water in the passage in the upstream. When treated water flows from the treated water passage 5 in the test water container 3 at this time, and the oil level in the test water container 3 goes up by this, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time, these air bubbles are removed and it is spread in treated water.

[0044] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.

[0045] With the operation gestalt shown in drawing 6 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, the treated water passage 5 drawn from the water treatment section 1 is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, an upper side face to the outflow passage 11 is drawn from the test water container 3 rather than the connecting location with the treated water passage 5. Moreover, the bleeder 19 is formed in the upper side face rather than the watertight material 25 at the test water container 3. Moreover, the electrode-holder object 18 of the water quality measuring instrument 2 carries out supporting free [migration in the vertical direction] by a direct-acting rail etc. to the test water container 3 etc. The condition that the lower limit of the electrode-holder object 18 is caudad arranged rather than the watertight material 25, and the induction section 4 is caudad arranged rather than the connecting location of the test water container 3 and the outflow passage 11 while the watertight of the electrode-holder object 18 and the medial surface of the test water container 3 is carried out by the watertight material 25, Between the conditions that the induction section 4 is arranged more nearly up than the connecting location of the test water container 3 and the outflow passage 11 while the electrode-holder object 18 is arranged up rather than this and the lower limit of the housing 23 of the electrode-holder object 18 is arranged more nearly up than the watertight material 25 and a bleeder 19 The arrangement location of the vertical direction over the test water container 3 is formed enabling free accommodation. Moreover, the driving sources 17, such as a motor which makes this shaft 16 drive in the vertical direction in what is shown in drawing 6 R> 6 (a) while connecting the upper limit of the shaft 16 of the vertical direction to the upper limit of the electrode-holder object 18, are connected. Upper ** or the arrangement location [as opposed to / make it lower-** and / that test water container 3] of the vertical direction can be adjusted now for the electrode-holder object 18 by making a shaft 16 drive in the vertical direction by this driving source 17. While preparing electromagnet 20a in the upper limit of the electrode-holder object 18 in what is shown in drawing 6 (b), moreover, above this electromagnet 20a Other electromagnet 20b is prepared to housing of a water treating unit, and the arrangement location of the vertical direction of the electrode-holder object 18 can be adjusted now by producing attraction or repulsive force between electromagnet 20a and 20b by adjusting the power supplied to each electromagnets 20a and 20b. Moreover, although illustration has not been carried out, the control section which controls the power supplied to

Electromagnets 20a and 20b based on the detection result by the water flow detection section 21 by what the control section which controls actuation of the driving sources 17, such as a motor, by what is shown in drawing 6 (a) based on the detection result by the water flow detection section 21 is also prepared, and is shown in drawing 6 (b) is also prepared.
[0046] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. If circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21 In what is shown in drawing 6 (a), a control section drives a shaft 16 by the driving source 17. In what is shown in drawing 6 (b), a control section adjusts supply of the power to Electromagnets 20a and 20b. While the lower limit of the electrode-holder object 18 is caudad arranged rather than the watertight material 25 and watertightness is secured between the electrode-holder object 18 and the inner skin of the test water container 3, control which adjusts the arrangement location of the vertical direction of the electrode-holder object 18 so that it may be in the condition that a bleeder 19 is blockaded on the side face of the electrode-holder object 18 is performed. The treated water which circulates the treated water passage 5 flows out of a tap hole out of equipment through the outflow passage 11, after flowing into the test water container 3 of the water quality measuring instrument 2, being immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3 and performing measurement of water quality.
[0047] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. If it is detected at this time that water is not circulating in the water flow detection section 21 and this detection result is inputted into a control section In what a control section drives a shaft 16 by the driving source 17 in what is shown in drawing 6 (a), and is shown in drawing 6 (b), a control section adjusts the power supplied to Electromagnets 20a and 20b. By moving the electrode-holder object 18 up to the test water container 3 While the lower limit of the electrode-holder object 18 is arranged more nearly up than the watertight material 25 and a bleeder 19, control which adjusts the arrangement location to the test water container 3 of the electrode-holder object 18 so that the induction section 4 may be arranged more nearly up than the connecting location of the test water container 3 and an outflow container is performed. For this reason, the induction section 4 comes to be arranged up rather than the oil level in the test water container 3, when air flows in the test water container 3 from a bleeder 19 at this time, an oil level ceases to reach more nearly up than the connecting location of the test water container 3 and the outflow passage 11, and the induction section 4 is arranged certainly more nearly up than an oil level. When air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4. Moreover, after a control section moves the electrode-holder object 18 up as mentioned above, it drives a shaft 16 by the driving source 17 in what is shown in drawing 6 R> 6 (a), and controls the power supplied to Electromagnets 20a and 20b by what is shown in drawing 6 (b). While the lower limit of the electrode-holder object 18 is caudad arranged rather than the watertight material 25 and the watertight of the electrode-holder object 18 and the medial surface of the test water container 3 is carried out by the watertight material 25 Control which adjusts the arrangement location of the electrode-holder object 18 so that the induction section 4 may be caudad arranged rather than the connecting location of the test water container 3 and the outflow passage 11 is performed. At this time, these air bubbles are removed and the induction section 4 is diffused in treated water, when it is immersed into treated water within the test water container 3 and small air bubbles remain in the induction section 4 at this time.
[0048] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.
[0049]
[Effect of the Invention] The water treating unit poured on claim 1 of this invention as mentioned above In the water treating unit possessing the passage from input to a tap hole, the water treatment section which processes to the raw water which circulates this passage, and the water quality measuring instrument which measures the water quality of the water after processing by the water treatment section Water is equipped with the induction section which contacts directly at the time of the test water container with which the water after a water quality measuring instrument processing is supplied, and water quality measurement. It changes from the condition that the induction section touches the water in a test water container when processing actuation of the water in the water treatment section is suspended to the condition that the induction section does not touch water. Subsequently, since the induction section possesses the change device changed to the condition of being in contact with the water in a test water container, Air bubbles comparatively large when processing actuation of the water in the water treatment section is suspended and air bubbles have adhered to the induction section considering the induction section as a condition of not being in contact with water, first are removed. Furthermore, the induction section can be contacted in water, small air bubbles can be removed, whenever it suspends water treatment actuation, the air bubbles of an induction section front face can be removed, generating of the abnormality output in a water quality measuring instrument can be controlled, and the exact water quality of the water after processing can be measured.
[0050] Moreover, invention of claim 2 branches the downstream of the treated water passage where the water after processing by the water treatment section circulates on the feeder current way of a minor diameter rather than wastewater passage and wastewater passage in claim 1. Since a change device is constituted by preparing a closing motion valve in wastewater passage, connecting with the reservoir section which stores the water after processing the downstream of a feeder current way, and connecting the reservoir section and a test water container in a communication trunk, When stopping water treatment actuation, open a closing motion valve and circulation of the water in wastewater passage is opened wide. While making the water which is piling up in treated water passage flow with the priority [way / feeder current] to the wastewater passage of a major diameter, make water flow backwards within a supply pipe, and the water of reservoir circles is made to flow into wastewater passage according to the ASUPIRESHON effectiveness. A communication trunk can be made to be able to flow backwards and the water in a test water container can be made to flow towards the reservoir section in connection with it. the induction section can consider as the condition of not contacting water, subsequently closes a closing motion valve again, and

flows the water of reservoir circles into a test water container through connection passage — making — the induction section — again — water — immersion **** — the induction section can be contacted in water by things.
[0051] Moreover, while invention of claim 3 connects to the lower part of a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates in claim 1 and connecting lower outflow passage to the lower part of a test water container as passage of the water which flows out of the inside of a test water container Since a change device is constituted by connecting up outflow passage to a test water container in the upper part, and preparing a closing motion valve in lower outflow passage rather than lower outflow passage, When stopping water treatment actuation, open a closing motion valve and open circulation of the water in lower outflow passage wide, and the water in a test water container is drained through lower outflow passage. When the induction section can consider as the condition of not contacting water, subsequently closes a closing motion valve again, makes water flow into a test water container from treated water passage and makes the induction section immersed in water, the induction section can be contacted in water.
[0052] Moreover, invention of claim 4 connects to a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates in claim 1. An adjusting device is formed. the stream which controls circulation of the water in the downstream rather than the reservoir section and the reservoir section which store the water after processing in the middle of piping of bypass passage while preparing the bypass passage which bypasses treated water passage — Since a change device is constituted by branching and preparing wastewater passage from treated water passage between the juncture of the downstream edge of bypass passage, and treated water passage, and a test water container, and preparing a closing motion valve in wastewater passage, When stopping water treatment actuation, open a closing motion valve and circulation of the water in wastewater passage is opened wide. Make treated water passage flow backwards and the water in a test water container is made to drain from wastewater passage. the condition that the induction section does not contact water — it can carry out — subsequently — a closing motion valve — again — closing — a stream — by generating the stream which goes to the downstream in the downstream rather than the reservoir section with an adjusting device, and making the water of reservoir circles flow into a test water solution through treated water passage from bypass passage The induction section can be made immersed underwater and the induction section can be contacted in water.
[0053] Moreover, invention of claim 5 connects to a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates in claim 1. Since a change device is constituted by connecting to a test water container the outflow passage where the water which flows out of the inside of a test water container circulates, preparing a closing motion valve in outflow passage, and preparing the air pump which sends out air to a test water container into a test water container, When stopping water treatment actuation, while closing a closing motion valve and preventing circulation of the water in outflow passage, and a gas Flow backwards the water in a test water container, and treated water passage is made to flow backwards with the pressure of Ayr by operating an air pump and sending out Ayr in a test water container. While the induction section can consider as the condition of not contacting water and subsequently suspends actuation of an air pump, when a closing motion valve is opened and water makes it flow into reservoir circles from treated water passage, the induction section can be made immersed underwater and the induction section can be contacted in water.
[0054] Moreover, invention of claim 6 connects to a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates in claim 1. The outflow passage where the water which flows out of the inside of a test water container circulates is connected to a test water container. Since a change means is constituted by forming the arrangement location of the vertical direction of a water quality measuring instrument, enabling free accommodation while forming treated water passage and outflow passage with a deformable flexible material, When stopping water treatment actuation, the water in a test water container by making treated water passage flow backwards by moving the arrangement location of a water quality measuring instrument up When the induction section can consider as the condition of not contacting water, subsequently moves the arrangement location of a water quality measuring instrument caudad and makes water flow from treated water passage in a test water container, the induction section can be made immersed underwater and the induction section can be contacted in water.
[0055] Moreover, in claim 6, since invention of claim 7 prepares the control lever for adjusting the arrangement location of the vertical direction of a water quality measuring instrument manually, it can adjust the arrangement location of the vertical direction of a water quality measuring instrument manually.
[0056] Moreover, in claim 6, since invention of claim 8 prepares the driving source which drives a shaft in the vertical direction while connecting a shaft to a water quality measuring instrument, it can adjust the arrangement location of the vertical direction of a water quality measuring instrument in automatic control.
[0057] Moreover, invention of claim 9 forms a water quality measuring instrument, when the induction section establishes the electrode-holder object holding the induction section free [vertical movement] to a test water container in claim 1 in the condition of having been arranged in a test water container. Since a change device is constituted by preparing the bleeder wide opened when an electrode-holder object upper-**, while being blockaded, when an electrode-holder object lower-** in a test water container, By making air flow in a test water container from a bleeder, while moving an electrode-holder object up to a test water container, and arranging the induction section in a test water container more nearly up than the oil level of water, when stopping water treatment actuation When the induction section can consider as the condition of not contacting water, subsequently moves an electrode-holder object caudad to a test water container and makes the induction section underwater immersed in a test water container, the induction section can be contacted in water.
[0058] Moreover, in claim 9, invention of claim 10 forms the electromagnet of upper [of this electromagnet], or others caudad while forming an electromagnet in an electrode-holder object, and since it forms possible [accommodation of the arrangement location of the vertical direction of an electrode-holder object] by controlling the power supplied to each electromagnet, it can move an electrode-holder object in the vertical direction according to the attraction or repulsive force between electromagnets.

[0059] Moreover, in claim 9, since invention of claim 11 prepares the driving source which drives this shaft in the vertical direction while connecting a shaft to an electrode-holder object, it can make a shaft able to drive in the vertical direction by the driving source, and can move an electrode-holder object in the vertical direction.
[0060] Moreover, in order that invention of claim 12 may prepare the water flow detection section which detects the existence of circulation of the water in this passage in the passage from input to a tap hole in claim 1 thru/or either of 11, When water flow of water is no longer detected in the water flow detection section and water treatment actuation is stopped by operating a

change device, the air bubbles from an induction section front face can be removed automatically.

[Translation done.]

TECHNICAL FIELD

[Field of the Invention] This invention relates to the water treating unit possessing the water quality measuring instrument which detects the water quality of the water after processing especially about the water treating unit which processes to raw water, such as a water purifier and an alkali alkali-ion water conditioner.

[Translation done.]

PRIOR ART

[Description of the Prior Art] Conventionally, the sensor for water quality detection is incorporated and used for not only the object for research but the industrial device (reference, such as JP,59-6988,A), or the domestic appliance (reference, such as JP,56-22093,U). In order to control equipment by the water quality which detected water quality, and displayed or was detected by the home water treatment device in recent years Although it has the working electrode and reference electrode which consist of a glass induction membrane electrode or an ion selective electrode as a sensor for water quality detection, like The thing incorporating the water quality measuring instrument equipped with the induction section contacted in the water which is the measuring object in order to detect specific water quality is put in practical use. Furthermore, the electrolysis water generation machine (reference, such as JP,5-22093,U and JP,5-64785,A), the bath water hot bath machine (reference, such as JP,6-335675,A), etc. are proposed as goods using this water quality measuring instrument.

[0003] In such a water treating unit, when using a water quality measuring instrument, and air bubbles adhere to the induction section of a water quality measuring instrument, detection of water quality is checked, an unusual output is emitted, and there is a case where measurement of exact water quality becomes impossible. For example, when carrying out electrolysis processing of the raw water with the cell which is the water treatment section, gas constituents, such as hydrogen, and oxygen, chlorine, arise by the following reactions, in the case of electrolysis water generation equipments, such as an alkali alkali-ion water conditioner, while these gas constituents adhere to the induction sections, such as a working electrode, at the time of detection of the water quality by the water quality measuring instrument, it grows up, and air bubbles arise in it, the induction section is cover in it, and measurement of exact water quality becomes impossible in it.

[0004] - a cathode side -- reaction 2H2O+2 -- e-->2OH-+H2 side and an anode plate side -- reaction 2H2O->4H++O2+4e- 2Cl-->Cl2+3e- there In measuring the electrolysis water containing such [conventionally] gas constituents etc. with a water quality measuring instrument As indicated by JP,9-236570,A form a pulsating generator in the upstream for water induction of pH sensor (water quality measuring instrument), or Or the technique of removing the air bubbles adhering to the induction section by preparing a spiral guide member in the space between parts for a part for the water induction of pH sensor (water quality measuring instrument) and a discharge part as indicated by JP,9-243588,A is proposed.

[Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention] The water treating unit poured on claim 1 of this invention as mentioned above In the water treating unit possessing the passage from input to a tap hole, the water treatment section which processes to the raw water which circulates this passage, and the water quality measuring instrument which measures the water quality of the water after. processing by the water treatment section Water is equipped with the induction section which contacts directly at the time of the test water container with which the water after a water quality measuring instrument processing is supplied, and water quality measurement. It changes from the condition that the induction section touches the water in a test water container when processing actuation of the water in the water treatment section is suspended to the condition that the induction section does not touch water. Subsequently, since the induction section possesses the change device changed to the condition of being in contact with the water in a test water container, Air bubbles comparatively large when processing actuation of the water in the water treatment section is suspended and air bubbles have adhered to the induction section considering the induction section as a condition of not being in contact with water, first are removed. Furthermore, the induction section can be contacted in water, small air bubbles can be removed, whenever it suspends water treatment actuation, the air bubbles of an induction section front face can be removed, generating of the abnormality output in a water quality measuring instrument can be controlled, and the exact water quality of the water after processing can be measured.

[0050] Moreover, invention of claim 2 branches the downstream of the treated water passage where the water after processing by the water treatment section circulates on the feeder current way of a minor diameter rather than wastewater passage and wastewater passage in claim 1. Since a change device is constituted by preparing a closing motion valve in wastewater passage, connecting with the reservoir section which stores the water after processing the downstream of a feeder current way, and connecting the reservoir section and a test water container in a communication trunk, When stopping water treatment actuation, open a closing motion valve and circulation of the water in wastewater passage is opened wide. While making the water which is piling up in treated water passage flow with the priority [way / feeder current] to the wastewater passage of a major diameter, make water flow backwards within a supply pipe, and the water of reservoir circles is made to flow into wastewater passage according to the ASUPIRESHON effectiveness. A communication trunk can be made to be able to flow backwards and the water in a test water container can be made to flow towards the reservoir section in connection with it. the induction section can consider as the condition of not contacting water, subsequently closes a closing motion valve again, and flows the water of reservoir circles into a test water container through connection passage -- making -- the induction section -- again -- water -- immersion **** -- the induction section can be contacted in water by things.

[0051] Moreover, while invention of claim 3 connects to the lower part of a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates in claim 1 and connecting lower outflow passage to the lower part of a test water container as passage of the water which flows out of the inside of a test water container Since a change device is constituted by connecting up outflow passage to a test water container in the upper part, and preparing a closing motion valve in lower outflow passage rather than lower outflow passage, When stopping water treatment actuation, open a closing motion valve and open circulation of the water in lower outflow passage wide, and the water in a test water container is drained through lower outflow passage. When the induction section can consider as the condition of not contacting water, subsequently closes a closing motion valve again, makes water flow into a test water container from treated water passage and makes the induction section immersed in water, the induction section can be contacted in water.

[0052] Moreover, invention of claim 4 connects to a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates in claim 1. An adjusting device is formed. the stream which controls circulation of the water in the downstream rather than the reservoir section and the reservoir section which store the water after processing in the middle of piping of bypass passage while preparing the bypass passage which bypasses treated water passage -- Since a change device is constituted by branching and preparing wastewater passage from treated water passage between the juncture of the downstream edge of bypass passage, and treated water passage, and a test water container, and preparing a closing motion valve in wastewater passage, When stopping water treatment actuation, open a closing motion valve and circulation of the water in wastewater passage is opened wide. Make treated water passage flow backwards and the water in a test water container is made to drain from wastewater passage. the condition that the induction section does not contact water -- it can carry out -- subsequently -- a closing motion valve -- again -- closing -- a stream -- by generating the stream which goes to the downstream in the downstream rather than the reservoir section with an adjusting device, and making the water of reservoir circles flow into a test water solution through treated water passage from bypass passage The induction section can be made immersed underwater and the induction section can be contacted in water.

[0053] Moreover, invention of claim 5 connects to a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates in claim 1. Since a change device is constituted by connecting to a test water container the outflow passage where the water which flows out of the inside of a test water container circulates, preparing a closing motion valve in outflow passage, and preparing the air pump which sends out air to a test water container into a test water container, When stopping water treatment actuation, while closing a closing motion valve and preventing circulation of the water in outflow passage, and a gas Flow backwards the water in a test water container, and treated water passage is made to flow backwards with the pressure of Ayr by operating an air pump and sending out Ayr in a test water container. While the induction section can consider as the condition of not contacting water and subsequently suspends actuation of an air pump, when a closing motion valve is opened and water makes it flow into reservoir circles from treated water passage, the induction section can be made immersed underwater and the induction section can be contacted in water.

[0054] Moreover, invention of claim 6 connects to a test water container the downstream of the treated water passage where the water after processing by the water treatment section circulates in claim 1. The outflow passage where the water which flows out of the inside of a test water container circulates is connected to a test water container. Since a change means is constituted by forming the arrangement location of the vertical direction of a water quality measuring instrument, enabling free accommodation while forming treated water passage and outflow passage with a deformable flexible material, When stopping water treatment actuation, the water in a test water container by making treated water passage flow backwards by moving the arrangement location of a water quality measuring instrument up When the induction section can consider as the condition of not contacting water, subsequently moves the arrangement location of a water quality measuring instrument caudad and makes

water flow from treated water passage in a test water container, the induction section can be made immersed underwater and the induction section can be contacted in water.
[0055] Moreover, in claim 6, since invention of claim 7 prepares the control lever for adjusting the arrangement location of the vertical direction of a water quality measuring instrument manually, it can adjust the arrangement location of the vertical direction of a water quality measuring instrument manually.
[0056] Moreover, in claim 6, since invention of claim 8 prepares the driving source which drives a shaft in the vertical direction while connecting a shaft to a water quality measuring instrument, it can adjust the arrangement location of the vertical direction of a water quality measuring instrument in automatic control.
[0057] Moreover, invention of claim 9 forms a water quality measuring instrument, when the induction section establishes the electrode-holder object holding the induction section free [vertical movement] to a test water container in claim 1 in the condition of having been arranged in a test water container. Since a change device is constituted by preparing the bleeder wide opened when an electrode-holder object upper-**, while being blockaded, when an electrode-holder object lower-** in a test water container, By making air flow in a test water container from a bleeder, while moving an electrode-holder object up to a test water container, and arranging the induction section in a test water container more nearly up than the oil level of water, when stopping water treatment actuation When the induction section can consider as the condition of not contacting water, subsequently moves an electrode-holder object caudad to a test water container and makes the induction section underwater immersed in a test water container, the induction section can be contacted in water.
[0058] Moreover, in claim 9, invention of claim 10 forms the electromagnet of upper [of this electromagnet], or others caudad while forming an electromagnet in an electrode-holder object, and since it forms possible [accommodation of the arrangement location of the vertical direction of an electrode-holder object] by controlling the power supplied to each electromagnet, it can move an electrode-holder object in the vertical direction according to the attraction or repulsive force between electromagnets.

[0059] Moreover, in claim 9, since invention of claim 11 prepares the driving source which drives this shaft in the vertical direction while connecting a shaft to an electrode-holder object, it can make a shaft able to drive in the vertical direction by the driving source, and can move an electrode-holder object in the vertical direction.
[0060] Moreover, in order that invention of claim 12 may prepare the water flow detection section which detects the existence of circulation of the water in this passage in the passage from input to a tap hole in claim 1 thru/or either of 11, When water flow of water is no longer detected in the water flow detection section and water treatment actuation is stopped by operating a change device, the air bubbles from an induction section front face can be removed automatically.

[Translation done.]

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, although generating of an abnormality output was controlled by removing air bubbles from the induction section to some extent when air bubbles [in / as mentioned above / the induction section] were removed, it was difficult to remove air bubbles completely, and measurement of still exact water quality was difficult.
[0006] In view of the above-mentioned point, it succeeds in this invention, and it is a water treating unit possessing the water-treatment section which processes to raw water, and the water-quality measuring instrument which measures the water quality of the water after processing by the water treatment section, adhesion of the air bubbles in the induction section of a water quality measuring instrument is prevented, generating of an abnormality output is prevented, and it aims at offering the water treating unit which can measure the water quality of the water after processing correctly.

[Translation done.]

MEANS

[Means for Solving the Problem] In the water treating unit possessing passage with the water treating unit from input to [in passage] a tap hole concerning claim 1 of this invention, the water treatment section 1 which processes to the raw water which circulates this passage, and the water quality measuring instrument 2 which measures the water quality of the water after processing by the water treatment section 1 Water is equipped with the induction section 4 which contacts directly at the time of the test water container 3 with which the water after the water quality measuring instrument 2 processing is supplied, and water quality measurement. It changes from the condition that the induction section 4 touches the water in the test water container 3 when processing actuation of the water in the water treatment section 1 is suspended to the condition that the induction section 4 does not touch water. Subsequently, it is characterized by for the induction section 4 possessing the change device changed to the condition of being in contact with the water in the test water container 3, and changing.
[0008] Moreover, invention of claim 2 branches the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates on the feeder current way 7 of a minor diameter rather than the wastewater passage 6 and the wastewater passage 6 in claim 1. It is characterized by constituting a change device and changing by forming the closing motion valve 8 in the wastewater passage 6, connecting with the reservoir section 9 which stores the water after processing the downstream of the feeder current way 7, and connecting the reservoir section 9 and the test water container 3 by the communication trunk 10.
[0009] moreover, as passage of the water which invention of claim 3 connects to the lower part of the test water container 3 the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates in claim 1, and flows out of the inside of the test water container 3 While connecting lower outflow passage 11a to the lower part of the test water container 3, it is characterized by constituting a change device and changing by connecting up outflow passage 11b to the test water container 3 in the upper part, and forming the closing motion valve 8 in lower outflow passage 11a rather than lower outflow passage 11a.
[0010] Moreover, invention of claim 4 connects to the test water container 3 the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates in claim 1. An adjusting device 13 is formed. the stream which controls circulation of the water in the downstream rather than the reservoir section 9 and the reservoir section 9 which store the water after processing in the middle of piping of the bypass passage 12 while forming the bypass passage 12 which bypasses the treated water passage 5 -- It is characterized by constituting a change device and changing by branching and forming the wastewater passage 6 from the treated water passage 5 between the juncture of the downstream edge of the bypass passage 12, and the treated water passage 5, and the test water container 3, and forming the closing motion valve 8 in the wastewater passage 6.
[0011] Moreover, invention of claim 5 connects to the test water container 3 the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates in claim 1. It is characterized by constituting a change device and changing by connecting to the test water container 3 the outflow passage 11 where the water which flows out of the inside of the test water container 3 circulates, forming the closing motion valve 8 in the outflow passage 11, and forming the air pump 14 which sends out air to the test water container 3 into the test water container 3.
[0012] Moreover, invention of claim 6 connects to the test water container 3 the downstream of the treated water passage 5 where the water after processing by the water treatment section 1 circulates in claim 1. The outflow passage 11 where the water which flows out of the inside of the test water container 3 circulates is connected to the test water container 3. While forming the treated water passage 5 and the outflow passage 11 with a deformable flexible material, it is characterized by constituting a change means and changing by forming the arrangement location of the vertical direction of the water quality measuring instrument 2, enabling free accommodation.
[0013] Moreover, invention of claim 7 is characterized by forming the control lever 15 for adjusting the arrangement location of the vertical direction of the water quality measuring instrument 2 manually, and changing in claim 6.
[0014] Moreover, in claim 6, invention of claim 8 is characterized by forming the driving source 17 which drives a shaft 16 in the vertical direction, and changing while it connects a shaft 16 to the water quality measuring instrument 2.
[0015] Moreover, invention of claim 9 forms the water quality measuring instrument 2, when the induction section 4 establishes the electrode-holder object 18 holding the induction section 4 free [vertical movement] to the test water container 3 in claim 1 in the condition of having been arranged in the test water container 3. By forming the bleeder 19 wide opened when the electrode-holder object 18 upper-**, while being blockaded, when the electrode-holder object 18 lower-** in the test water container 3, it is characterized by constituting a change device and changing.
[0016] Moreover, in claim 9, invention of claim 10 prepares electromagnet 20b of upper [of this electromagnet 20a], or others caudad while preparing electromagnet 20a in the electrode-holder object 18, and it is characterized by forming possible [accommodation of the arrangement location of the vertical direction of the electrode-holder object 18], and changing by controlling the power supplied to each electromagnets 20a and 20b.
[0017] Moreover, in claim 9, invention of claim 11 is characterized by forming the driving source 17 which drives this shaft 16 in the vertical direction, and changing while it connects a shaft 16 to the electrode-holder object 18.
[0018] Moreover, invention of claim 12 is characterized by forming the water flow detection section 21 which detects the existence of circulation of the water in this passage in the passage from input to a tap hole, and growing into it in claim 1 thru/or either of 11.
[0019]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained.
[0020] the piping middle of passage with the water treating unit from input to [in passage] a tap hole concerning this invention -- as the water treatment section 1 -- a cell, a purification filter, and minerals -- addition equipment etc. is arranged and the water quality measuring instrument 2 which measures the water quality of water (treated water) after being processed by the downstream in the water treatment section 1 rather than this water treatment section 1 is arranged.
[0021] The water quality measuring instrument 2 measures water quality, such as pH of the water which is the measuring object, ion concentration, and electrical conductivity, and the water quality measuring device is constituted from the test water container 3 with which the treated water which is a candidate for detection is supplied, and the electrode-holder object 18 by the gestalt of operation shown in drawing 1 -6 mentioned later. The test water container 3 is a container in which the upper

part carries out opening, and the watertight material 25 which consists of O ring, packing material, etc. is formed in the inner skin. The electrode-holder object 18 holds the detection terminals 22, such as a reference electrode and a working electrode, and this detection terminal 22 is arranged so that it may turn caudad from the housing 23 of the electrode-holder section 18 and may extend. The detection terminal 22 has the induction section 4, and water quality is measured by contacting this induction section 4 in the water which is the measuring object directly. For example, when the detection terminal 22 consists of a working electrode and reference electrodes, such as a glass electrode and an ion selective electrode, the liquid junction of the glass induction film of a glass electrode, the ion-selective induction film of an ion selective electrode, and a reference electrode etc. turns into the induction section 4. And by making the peripheral face of housing 23 **** to the inner skin of the test water container 3 in the condition of having arranged the induction section 4 in the test water container 3, the electrode-holder object 18 and the test water container 3 are unified, and the water quality measuring instrument 2 is constituted. At this time, the watertight material 25 is infixed between the external surface of housing 23, and the inside of the test water container 3, and watertightness is secured.

[0022] The water quality measured with this water quality measuring instrument 2 is used in order to tell the water quality of the treated water which expresses as a proper display means and is generated by the user, or to control processing conditions so that the treated water generated in the water treatment section 1 serves as desired water quality.

[0023] This invention is made into the condition that the induction section 4 of the above-mentioned water quality measuring instrument 2 does not contact treated water when supply of the water from input is suspended. It is what the induction section 4 equips with the change device changed to the condition that it is immersed into treated water and the induction section 4 contacts water after that. Furthermore, by this The air bubbles of induction section 4 front face are removed after a halt of water treatment actuation, generating of the abnormality output in the water quality measuring instrument 2 is controlled, and it is made to measure exact water quality.

[0024] A concrete operation gestalt is shown below.

[0025] With the operation gestalt shown in drawing 1 , the downstream edge of the raw water passage 24 which the upstream opens for free passage to the input of raw water is connected to the water treatment section 1. Moreover, from the water treatment section 1, the treated water passage 5 where the raw water (treated water) after being processed within the water treatment section 1 circulates is drawn, and the water flow detection section 21 which consists of a pressure sensor, flow rate sensors, or such combination is formed in the middle of piping of this treated water passage 5. Moreover, the treated water passage 5 branches on the feeder current way 7 of a minor diameter rather than the wastewater passage 6 and the wastewater passage 6 by the downstream. The downstream turned the wastewater passage 6 caudad, it has extended, and the closing motion valve 8 which consists of solenoid valves etc. is formed in the middle of the piping. Moreover, the downstream has extended towards the side and, as for the feeder current way 7, is connected to the side face of the reservoir section 9 in which the downstream edge consisted of hollow containers. Moreover, the communication trunk 10 is drawn from the pars basilaris ossis occipitalis of the reservoir section 9, and free passage connection of the downstream edge of this communication trunk 10 is made on the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, rather than the connecting location of the communication trunk 10 from the test water container 3, in the upper part, the outflow passage 11 is drawn from the side face rather than the upper part and the arrangement location of the induction section 4, and the downstream of this outflow passage 11 is opened for free passage by the tap hole. Moreover, although illustration has not been carried out, the control section which controls actuation of the closing motion valve 8 based on the detection result by the water flow detection section 21 is also prepared.

[0026] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by the processing in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5. If circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21, a control section will control to close the closing motion valve 8 and to prevent circulation of the water in the wastewater passage 6. For this reason, once treated water flows in the reservoir section 9 through the feeder current way 7 from the treated water passage 5 and treated water is stored in the reservoir section 9, it flows in the test water container 3 of the water quality measuring instrument 2 through a communication trunk 10, it is immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3, and measurement of water quality is performed. Subsequently, treated water is sent to a tap hole through the outflow passage 11, and is drawn out of equipment.

[0027] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. If it is detected that water is not circulating in the water flow detection section 21 at this time and this detection result is inputted into a control section, a control section will open the closing motion valve 8, and will open circulation of the water in the wastewater passage 6. For this reason, the treated water which is piling up in the treated water passage 5 flows with the priority [way / 7 / feeder current] to the wastewater passage 6 of a major diameter. Are drained through the wastewater passage 6, and at this time, according to the ASUPIRESHON effectiveness, flow backwards the feeder current way 7 and the treated water in the reservoir section 9 flows into the wastewater passage 6. In connection with it, the treated water in the test water container 3 flows backwards a communication trunk 10, it flows towards the reservoir section 9, and the flow of these treated water is secured because air flows in the test water container 3 from the outflow passage 11. For this reason, when the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level and air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively large air bubbles are removed from the induction section 4, and are discharged from the wastewater passage 6 with treated water. Moreover, a control section controls to close the closing motion valve 8 again, after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level after opening the closing motion valve 8 passes. At this time, when the treated water in the reservoir section 9 flows into the test water container 3 through a communication trunk 10, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time, these air bubbles are removed and it is spread in treated water.

[0028] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring

instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.

[0029] With the operation gestalt shown in drawing 2 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, rather than the induction section 4, the treated water passage 5 drawn from the water treatment section 1 sets caudad, and is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, as passage of the water which flows out of the test water container 3, lower outflow passage 11a and up outflow passage 11b are drawn from the test water container 3. Lower outflow passage 11a was drawn from the lower side face of the test water container 3 which can be caudad set rather than the arrangement location of the induction section 4, and the downstream turns it caudad, it has extended, and the closing motion valve 8 constituted with a solenoid valve etc. is formed in the middle of the piping. On the other hand, rather than the connecting location of lower outflow passage 11a, rather than the upper part and the arrangement location of the induction section 4, up outflow passage 11b is drawn from the side face of the test water container 3 in the upper part, and the downstream turned it caudad, and it has extended. Moreover, although illustration has not been carried out, the control section which controls actuation of the closing motion valve 8 based on the detection result by the water flow detection section 21 is also prepared.

[0030] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. If circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21, a control section will control to close the closing motion valve 8 and to prevent circulation of the water in lower outflow passage 11a. The treated water which circulates the treated water passage 5 flows into the test water container 3 of the water quality measuring instrument 2, it is immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3, and measurement of water quality is performed. Subsequently, since circulation of the water in lower outflow passage 11a is prevented as mentioned above, in the test water container 3, treated water flows only at up outflow passage 11b, and is sent to a tap hole through this up outflow passage 11b, and it is drawn out of equipment.

[0031] When the water level of the water in the passage of the water in equipment reaches to the arrangement location of up outflow passage 11b, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5, in suspending supply of the water from input and stopping water treatment actuation. If it is detected that water is not circulating in the water flow detection section 21 at this time and this detection result is inputted into a control section, a control section will open the closing motion valve 8, and will open circulation of the water in lower outflow passage 11a. For this reason, although the treated water in the test water container 3 will be altogether drained through lower outflow passage 11a and treated water will flow in the test water container 3 from the treated water passage 5 at this time Rather than the induction section 4, since the treated water passage 5 in the test water container 3 and the connecting location of lower outflow passage 11a are lower parts When the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level and air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4, and are discharged from lower outflow passage 11a with treated water. Moreover, a control section controls to close the closing motion valve 8 again, after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level after opening the closing motion valve 8 passes. At this time, when the oil level in the test water container 3 goes up with the water which flows from the treated water passage 5, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time, these air bubbles are removed and it is spread in treated water.

[0032] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.

[0033] With the operation gestalt shown in drawing 3 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, the treated water passage 5 drawn from the water treatment section 1 is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, free passage connection of the bypass passage 12 which bypasses the treated water passage 5 is made in the treated water passage 5. The bypass passage 12 extends caudad, after the upstream branches from the treated water passage 5 and extends to the side, and a downstream edge joins the treated water passage 5. The reservoir section 9 which consists of a hollow container in the middle of piping of the bypass passage 12 is formed, and the flow rate control unit which controls the amount of circulation of the water in the downstream rather than the reservoir section 9 of the bypass passage 12 is further arranged in the downstream from the reservoir section 9. This flow rate control unit changes the condition of preventing with the condition of opening circulation of water, or possesses the function to adjust the flow rate in the case of circulating water, and consists of a closing motion valve 8, pumps, or such combination according to the piping configuration of the bypass passage 12. When the bypass passage 12 has extended caudad by the downstream rather than the reservoir section 9 like illustration, the flow rate control unit can be combined as the closing motion valve 8 or the closing motion valve 8, and the pump, and can be constituted. Moreover, the wastewater passage 6 is branched and established in the treated water passage 5 between the unification location with the downstream edge of the bypass passage 12, and the test water container 3, and in the example of illustration, it is prepared so that the wastewater passage 6 may turn caudad and may extend from a unification location with the downstream edge of the bypass passage 12. The closing motion valve 8 which consists of a solenoid valve etc. is formed in the middle of piping of this wastewater passage 6. Moreover, from the test water container 3, the outflow passage 11 is drawn from the upper side face rather than the arrangement location of the induction section 4, and the downstream turned caudad and has extended. moreover, the detection result by the water flow detection section 21 although illustration has not been carried out -- being based -- the closing motion valve 8 and a stream -- the

control section which controls actuation of an adjusting device 13 is also prepared.
[0034] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. if circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21, while a control section will close the closing motion valve 8 and preventing circulation of the water in the wastewater passage 6 -- a stream -- control which prevents circulation of the water in the bypass passage 12 of the downstream from the reservoir section 9 with an adjusting device 13 is performed. The treated water which circulates the treated water passage 5 is discharged out of equipment from a tap hole through the outflow passage 11, after flowing into the test water container 3 of the water quality measuring instrument 2, being immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3 and performing measurement of water quality. Moreover, some treated water which circulates this treated water passage 5 flows into the bypass passage 12, and it is stored in the reservoir section 9.
[0035] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. If it is detected that water is not circulating in the water flow detection section 21 at this time and this detection result is inputted into a control section, a control section will open the closing motion valve 8, and will open circulation of the water in the wastewater passage 6. For this reason, the treated water in the test water container 3 flows backwards the treated water passage 5, and is drained from the wastewater passage 6, and the flow of this treated water is secured from the outflow passage 11 because air flows in the test water container 3. For this reason, when the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level and air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4, and are discharged from the wastewater passage 6 with treated water. moreover -- after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level after a control section opens the closing motion valve 8 passes, while controlling to close the closing motion valve 8 again -- a stream -- the stream which controls an adjusting device 13 and goes to the downstream in the downstream rather than the reservoir section 9 is generated. At this time, these air bubbles are removed and the treated water in the reservoir section 9 is diffused in treated water, when flow into the downstream of the bypass passage 12 and it flows into the test water container 3 through the treated water passage 5, and the oil level in the test water container 3 goes up by this, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time.

[0036] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.
[0037] With the operation gestalt shown in drawing 4 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, the treated water passage 5 drawn from the water treatment section 1 is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, from the test water container 3, the outflow passage 11 is drawn from the upper side face rather than the arrangement location of the induction section 4, and the downstream turned caudad and has extended. The closing motion valve 8 which consists of a solenoid valve which opens and closes circulation of the liquid in the outflow passage 11 and a gas is formed in this outflow passage 11. Moreover, the air pump 14 which sends out Ayr in the test water container 3 is connected to the test water container 3. Moreover, although illustration has not been carried out, the control section which controls actuation of the closing motion valve 8 and an air pump 14 based on the detection result by the water flow detection section 21 is also prepared.
[0038] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. If circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21, a control section will control not to operate an air pump 14 while it opens the closing motion valve 8 and opens circulation of the water in the outflow passage 11. The treated water which circulates the treated water passage 5 flows out of a tap hole out of equipment through the outflow passage 11, after flowing into the test water container 3 of the water quality measuring instrument 2, being immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3 and performing measurement of water quality.
[0039] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. If it is detected that water is not circulating in the water flow detection section 21 at this time and this detection result is inputted into a control section, a control section operates an air pump 14 and sends out Ayr in the test water container 3 while it closes the closing motion valve 8 and prevents circulation of the water in the outflow passage 11, and a gas. For this reason, the treated water in the test water container 3 flows backwards the treated water passage 5 with the pressure of Ayr. For this reason, the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level, and when air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4. Moreover, after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level since an air pump 14 is operated while closing the closing motion valve 8 passes, a control section controls to open the closing motion valve 8 while suspending actuation of an air pump 14. When treated water flows from the treated water passage 5 in the reservoir section 9 at this time, and the oil level in the test water container 3

goes up by this, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time, these air bubbles are removed and it is spread in treated water.
[0040] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.
[0041] With the operation gestalt shown in drawing 5 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, the treated water passage 5 drawn from the water treatment section 1 is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, an upper side face to the outflow passage 11 is drawn from the test water container 3 rather than the arrangement location of the induction section 4. Moreover, to housing of a water treating unit, by the direct-acting rail etc., the water quality measuring instrument 2 is supported in the vertical direction free [migration], and is formed in it for the arrangement location of the vertical direction, enabling free accommodation. Moreover, in what is shown in drawing 5 (a), a control lever 15 is connected and formed in the water quality measuring instrument 2. In what can adjust now the arrangement location of the vertical direction of the water quality measuring instrument 2, and is shown in drawing 5 (b) by operating this control lever 15 manually The driving sources 17, such as a motor which makes this shaft 16 drive in the vertical direction while connecting the upper limit of the shaft 16 of the vertical direction to the lower limit of the water quality measuring instrument 2, are connected. The arrangement location of the vertical direction of the water quality measuring instrument 2 can be adjusted now by making a shaft 16 drive in the vertical direction by the motor. Moreover, although illustration has not been carried out, the control section which controls actuation of the driving sources 17, such as a motor, by what is shown in drawing 5 (b) based on the detection result by the water flow detection section 21 is also prepared. Moreover, the above-mentioned treated water passage 5 and the above-mentioned outflow passage 11 consist of flexible materials at least with a deformable part, and, for this reason, vertical migration of the water quality measuring instrument 2 in the condition that the treated water passage 5 and the outflow passage 11 were connected to the test water container 3 according to deformation of the treated water passage 5 and the outflow passage 11 is secured. This treated water passage 5 and the outflow passage 11 consist of ducts which were formed with the resin ingredient of the shape for example, of bellows and in which flexible deformation is free.
[0042] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. By operating a control lever 15 beforehand in what is shown in drawing 5 (a) at this time, so that it may be caudad arranged rather than the oil level of water [in / from the water quality measuring instrument 2 / in the connecting location of the outflow passage 11 in the test water container 3 / the passage in the upstream] If the arrangement location of the vertical direction of the water quality measuring instrument 2 is adjusted, circulation of water is detected in the water flow detection section 21 in what is shown in drawing 5 (b) and a detection result is inputted into a control section by this water flow detection section 21 A control section drives a shaft 16 by the driving source 17, and performs control to which the connecting location of the outflow passage 11 in the test water container 3 adjusts the arrangement location of the vertical direction of the water quality measuring instrument 2 so that it may be caudad arranged rather than the oil level of water [in / from the water quality measuring instrument 2 / the passage in the upstream]. The treated water which circulates the treated water passage 5 flows out of a tap hole out of equipment through the outflow passage 11, after flowing into the test water container 3 of the water quality measuring instrument 2, being immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3 and performing measurement of water quality.
[0043] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. By operating a control lever 15 manually by what is shown in drawing 5 (a) at this time, and moving the water quality measuring instrument 2 up Rather than the water quality measuring instrument 2, the connecting location of the test water container 3 and the treated water passage 5 adjusts the arrangement location of the water quality measuring instrument 2 so that it may be arranged more nearly up than the water surface of the water in the passage in the upstream. Moreover, if it is detected that water is not circulating in the water flow detection section 21 in what is shown in drawing 5 R> 5 (b) and this detection result is inputted into a control section By a control section's driving a shaft 16 by the driving source 17, and moving the water quality measuring instrument 2 up The connecting location of the test water container 3 and the treated water passage 5 performs control which adjusts the arrangement location of the water quality measuring instrument 2 so that it may be arranged more nearly up than the water surface of the water in the passage in the upstream rather than the water quality measuring instrument 2. For this reason, the treated water in the test water container 3 flows backwards the treated water passage 5, the oil level in the test water container 3 falls, the induction section 4 comes to be arranged more nearly up than an oil level, and the flow of this treated water is secured from the outflow passage 11 because air flows in the test water container 3. When air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4. Moreover, by operating a control lever 15 manually and moving the water quality measuring instrument 2 caudad, after the oil level in the test water container 3 fell in what is shown in drawing 5 (a) and the induction section 4 has been arranged more nearly up than an oil level Rather than the water quality measuring instrument 2, the connecting location of the test water container 3 and the outflow passage 11 adjusts the arrangement location of the water quality measuring instrument 2 so that it may be caudad arranged rather than the water surface of the water in the passage in the upstream. Moreover, after fixed time amount taken for the oil level in the test water container 3 to fall, and to arrange the induction section 4 more nearly up than an oil level after a control section moves the water quality measuring instrument 2 up as mentioned above to what is shown in drawing 5 (b) passes A shaft 16 is driven by the driving source 17, and rather than the water quality measuring instrument 2, the connecting location of the outflow passage 11 in the test water container 3 performs control which adjusts the arrangement location of the vertical direction of the water quality measuring instrument 2 so that it may be caudad arranged rather than the oil level of the water in the passage in the upstream. When treated water flows from the treated water passage 5 in the test water container 3

at this time, and the oil level in the test water container 3 goes up by this, it is again immersed in treated water in the induction section 4 and small air bubbles remain in the induction section 4 at this time, these air bubbles are removed and it is spread in treated water.

[0044] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.

[0045] With the operation gestalt shown in drawing 6 , although illustration has not been carried out, the water treatment section 1 to which the raw water passage 24 and the treated water passage 5 were connected like what is shown in drawing 1 is formed, and the water flow detection section 21 is formed in the treated water passage 5. Moreover, the treated water passage 5 drawn from the water treatment section 1 is connected to the lower side face of the test water container 3 of the water quality measuring instrument 2. Moreover, an upper side face to the outflow passage 11 is drawn from the test water container 3 rather than the connecting location with the treated water passage 5. Moreover, the bleeder 19 is formed in the upper side face rather than the watertight material 25 at the test water container 3. Moreover, the electrode-holder object 18 of the water quality measuring instrument 2 carries out supporting free [migration in the vertical direction] by a direct-acting rail etc. to the test water container 3 etc. The condition that the lower limit of the electrode-holder object 18 is caudad arranged rather than the watertight material 25, and the induction section 4 is caudad arranged rather than the connecting location of the test water container 3 and the outflow passage 11 while the watertight of the electrode-holder object 18 and the medial surface of the test water container 3 is carried out by the watertight material 25, Between the conditions that the induction section 4 is arranged more nearly up than the connecting location of the test water container 3 and the outflow passage 11 while the electrode-holder object 18 is arranged up rather than this and the lower limit of the housing 23 of the electrode-holder object 18 is arranged more nearly up than the watertight material 25 and a bleeder 19 The arrangement location of the vertical direction over the test water container 3 is formed enabling free accommodation. Moreover, the driving sources 17, such as a motor which makes this shaft 16 drive in the vertical direction in what is shown in drawing 6 R> 6 (a) while connecting the upper limit of the shaft 16 of the vertical direction to the upper limit of the electrode-holder object 18, are connected. Upper ** or the arrangement location [as opposed to / make it lower-** and / that test water container 3] of the vertical direction can be adjusted now for the electrode-holder object 18 by making a shaft 16 drive in the vertical direction by this driving source 17. While preparing electromagnet 20a in the upper limit of the electrode-holder object 18 in what is shown in drawing 6 (b), moreover, above this electromagnet 20a Other electromagnet 20b is prepared to housing of a water treating unit, and the arrangement location of the vertical direction of the electrode-holder object 18 can be adjusted now by producing attraction or repulsive force between electromagnet 20a and 20b by adjusting the power supplied to each electromagnets 20a and 20b. Moreover, although illustration has not been carried out, the control section which controls the power supplied to Electromagnets 20a and 20b based on the detection result by the water flow detection section 21 by what the control section which controls actuation of the driving sources 17, such as a motor, by what is shown in drawing 6 (a) based on the detection result by the water flow detection section 21 is also prepared, and is shown in drawing 6 (b) is also prepared.

[0046] Thus, in the water treating unit constituted, at the time of water treatment actuation, raw water is supplied from input, raw water circulates the raw water passage 24, is supplied to the water treatment section 1, and predetermined processing is performed. The treated water generated by processing of the raw water in the water treatment section 1 is drawn from the water treatment section 1 through the treated water passage 5, and flows into the test water container 3 of the water quality measuring instrument 2. If circulation of water is detected in the water flow detection section 21 at this time and a detection result is inputted into a control section by this water flow detection section 21 In what is shown in drawing 6 (a), a control section drives a shaft 16 by the driving source 17. In what is shown in drawing 6 (b), a control section adjusts supply of the power to Electromagnets 20a and 20b. While the lower limit of the electrode-holder object 18 is caudad arranged rather than the watertight material 25 and watertightness is secured between the electrode-holder object 18 and the inner skin of the test water container 3, control which adjusts the arrangement location of the vertical direction of the electrode-holder object 18 so that it may be in the condition that a bleeder 19 is blockaded on the side face of the electrode-holder object 18 is performed. The treated water which circulates the treated water passage 5 flows out of a tap hole out of equipment through the outflow passage 11, after flowing into the test water container 3 of the water quality measuring instrument 2, being immersed into treated water in the induction section 4 of the electrode-holder object 18 in the test water container 3 and performing measurement of water quality.

[0047] When suspending supply of the water from input and stopping water treatment actuation, treated water stops flowing out of the water treatment section 1 into the treated water passage 5, treated water piles up and treated water stops moreover, circulating in the treated water passage 5. If it is detected at this time that water is not circulating in the water flow detection section 21 and this detection result is inputted into a control section In what a control section drives a shaft 16 by the driving source 17 in what is shown in drawing 6 (a), and is shown in drawing 6 (b), a control section adjusts the power supplied to Electromagnets 20a and 20b. By moving the electrode-holder object 18 up to the test water container 3 While the lower limit of the electrode-holder object 18 is arranged more nearly up than the watertight material 25 and a bleeder 19, control which adjusts the arrangement location to the test water container 3 of the electrode-holder object 18 so that the induction section 4 may be arranged more nearly up than the connecting location of the test water container 3 and an outflow container is performed. For this reason, the induction section 4 comes to be arranged up rather than the oil level in the test water container 3, when air flows in the test water container 3 from a bleeder 19 at this time, an oil level ceases to reach more nearly up than the connecting location of the test water container 3 and the outflow passage 11, and the induction section 4 is arranged certainly more nearly up than an oil level. When air bubbles have adhered to the induction section 4 during water quality measurement of treated water at this time, comparatively big air bubbles are removed from the induction section 4. Moreover, after a control section moves the electrode-holder object 18 up as mentioned above, it drives a shaft 16 by the driving source 17 in what is shown in drawing 6 R> 6 (a), and controls the power supplied to Electromagnets 20a and 20b by what is shown in drawing 6 (b). While the lower limit of the electrode-holder object 18 is caudad arranged rather than the watertight material 25 and the watertight of the electrode-holder object 18 and the medial surface of the test water container 3 is carried out by the watertight material 25 Control which adjusts the arrangement location of the electrode-holder object 18 so that the induction section 4 may be caudad arranged rather than the connecting location of the test water container 3 and the outflow passage 11 is performed. At this time, these air bubbles are removed and the induction section 4 is diffused in treated water, when it is

immersed into treated water within the test water container 3 and small air bubbles remain in the induction section 4 at this time.

[0048] Therefore, whenever it suspends water treatment actuation, air bubbles can be completely removed from the induction section 4 of the water quality measuring instrument 2, generating of the abnormality output in the water quality measuring instrument 2 by growth of the air bubbles adhering to the induction section 4 can be prevented, and exact water quality can be measured now.

[Translation done.]

DESCRIPTION OF DRAWINGS

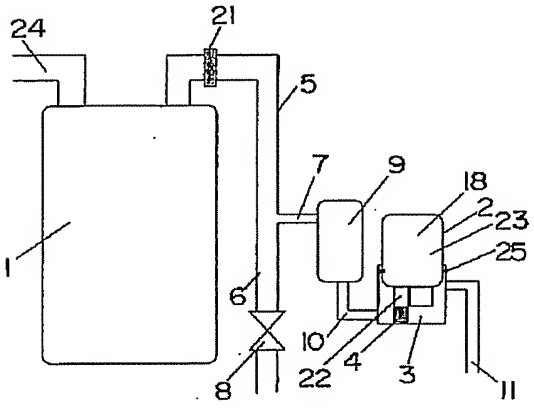
[Brief Description of the Drawings]
[Drawing 1] It is the schematic diagram showing an example of the gestalt of operation of this invention.
[Drawing 2] It is the schematic diagram showing the other examples of the gestalt of operation of this invention.
[Drawing 3] It is the schematic diagram of the gestalt of operation of this invention showing other examples further.
[Drawing 4] It is the schematic diagram of the gestalt of operation of this invention showing other examples further.
[Drawing 5] The schematic diagram in which (a) shows the other examples of the gestalt of operation of this invention, and (b) are the schematic diagrams showing still more nearly another example.
[Drawing 6] The schematic diagram in which (a) shows the other examples of the gestalt of operation of this invention, and (b) are the schematic diagrams showing still more nearly another example.
[Description of Notations]
1 Water Treatment Section
2 Water Quality Measuring Instrument
3 Test Water Container
4 Induction Section
5 Treated Water Passage
6 Wastewater Passage
7 Feeder Current Way
8 Closing Motion Valve
9 Reservoir Section
10 Communication Trunk
11 Outflow Passage
11a Lower outflow passage
11b Up outflow passage
12 Bypass Passage
13 Stream — Adjusting Device
14 Air Pump
15 Control Lever
16 Shaft
17 Driving Source
18 Electrode-Holder Object
19 Bleeder
20a Electromagnet
20b Electromagnet
21 Water Flow Detection Section

[Translation done.]

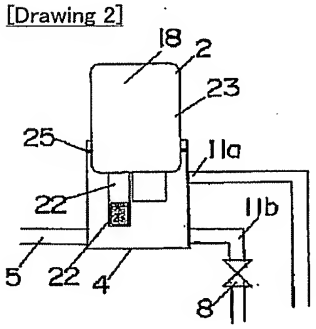
DRAWINGS

[Drawing 1]

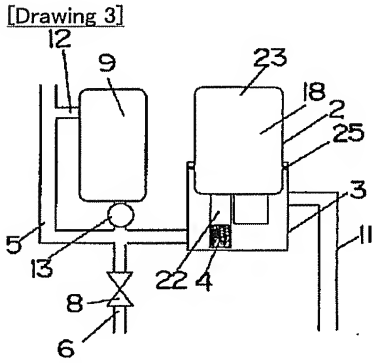
1 水処理部
2 水質測定器
3 検水容器
4 感応部



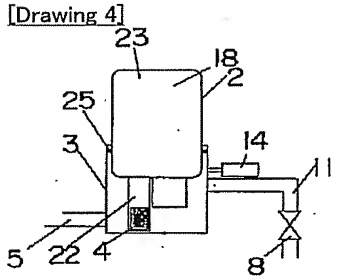
[Drawing 2]



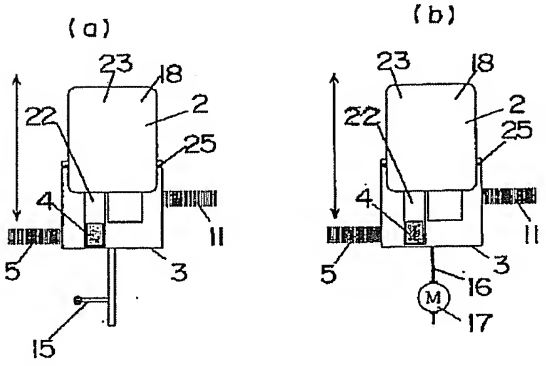
[Drawing 3]



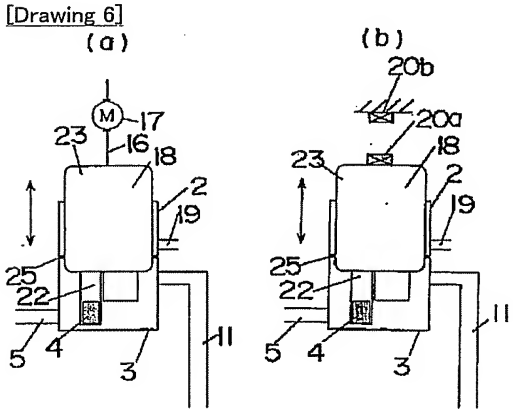
[Drawing 4]



[Drawing 5]



[Drawing 6]



[Translation done.]